Early In-Session Predictors of Response to Trauma-Focused Cognitive Therapy

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Thesis declaration form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Overview

Volume 1 of this thesis examines the predictors of response to trauma-focused treatment for posttraumatic stress disorder (PTSD). It is presented in three parts.

Part 1 is a literature review of research evaluating the impact of trauma-focused therapy for PTSD on comorbid symptoms of depression. The Downs and Black (1998) checklist was used to assess study quality. Results indicated that both trauma-focused CBT and EMDR treatments were effective in reducing comorbid depression symptoms. However, as interventions varied widely and some studies were affected by significant methodological problems, the generalisability of these results may be limited, and thus areas for further research are also suggested.

Part 2 is an empirical study exploring early in-session client and therapist factors that predict later response to treatment. Audio and video recordings of the first or second therapy session of 54 known treatment responders or non-responders were blind-rated for client perseverative thinking, therapist adherence and therapeutic alliance. Results revealed that more perseverative thinking was observed for non-responders than responders to treatment. No group differences were found in regards to therapist adherence or therapeutic alliance. Exploratory analyses revealed that across the sample as a whole, perseverative thinking was associated with reduced therapist adherence to the treatment manual and poorer therapeutic alliance. As this study is one of the first of its kind in this area, recommendations were made for future research opportunities to explore these findings further.

Part 3 is a critical appraisal of the empirical study. This elaborates on the main findings of this project and discusses the methodological challenges involved in undertaking this type of research, particularly developing and applying a novel coding frame.

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Part 1: Literature Review

The Effect of Treatment for Posttraumatic Stress Disorder on Comorbid Depression

Abstract

Aims: Depression is the most frequently reported comorbid disorder for those diagnosed with posttraumatic stress disorder (PTSD). As clinical guidelines recommend that trauma-focused treatment be provided in the first instance for those with PTSD who also report depressive symptoms, this review examines the impact of trauma-focused therapy for PTSD on comorbid symptoms of depression.

Method: The inclusion criteria were: i) an adult population meeting diagnostic criteria for PTSD; ii) evidence-based treatments i.e. cognitive behavioural therapy (CBT) or eye-movement desensitisation and reprocessing (EMDR); iii) PTSD and depression outcome measures were used. Case studies and small N designs were excluded. Following a search of MEDLINE and PsycINFO and the references of included papers, 35 relevant studies were identified.

Results: CBT and EMDR both demonstrated effectiveness in reducing comorbid depression symptoms. Further, studies comparing the two types of treatment suggested that they were both equally effective at this. However, as interventions varied widely, and some studies were affected by methodological problems, the generalisability of these results is limited.

Conclusions: CBT and EMDR treatments for PTSD are effective in reducing symptoms of comorbid depression, even where depression symptoms have not been targeted specifically. Further research is needed to explore the mechanisms that produce improvements in depression symptoms and whether PTSD treatments are also effective for depression symptoms that pre-date traumatic experiences, in order to make stronger recommendations regarding treatment for clients with a comorbid presentation.

Introduction

Several effective talking therapies have emerged in recent years for the treatment of PTSD symptoms (NICE, 2005). However, comorbidity is very common in PTSD, which might have an impact on the effectiveness of these treatments. Estimates of the rates of comorbid diagnoses vary widely, with some as high as 92% (Shore, Vollmer & Tatum, 1989). Of these comorbid disorders, the most frequently reported condition is major depressive disorder, with estimates reaching up to 47% (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995). Alcohol and substance abuse/dependence and other anxiety disorders are also common (Breslau, Davis, Andreski & Peterson, 1991).

Based on systematic reviews of treatment outcome studies, the National Institute for Health and Care Excellence (NICE, 2005) recommend the delivery of eight to twelve sessions of trauma-focused cognitive-behavioural therapy (tfCBT) or eye movement desensitisation and reprocessing (EMDR) as the first line treatments for a single incident trauma. Furthermore, it is stipulated that therapies that do not actively address the trauma memory (e.g. relaxation) should not be offered as a treatment for PTSD due to a lack of evidence regarding their effectiveness.

Within the purview of tfCBT, studies can be broadly separated into three categories: those using a prolonged exposure (PE) protocol (e.g. Foa et al., 1999), those using a cognitive therapy (tfCT) protocol (e.g. Ehlers, Clark, Hackmann, McManus & Fennell, 2005) and those using a Cognitive Processing Therapy (CPT) approach (Resick et al., 2008). Although all treatments involve exposure to the memory of the traumatic event(s), there is a different rationale underpinning the two approaches. For PE, the primary function of treatment is to promote emotional (fear) habituation (Foa & Kozak, 1986) to the trauma memory through repeated exposure. However, in

tfCT, the use of reliving is instead to enable the therapist and client to identify idiosyncratic unhelpful appraisals that require cognitive restructuring (CR) and updating in the trauma memory (Ehlers et al., 2005). Previously, researchers have required clients to describe their trauma narrative verbally, but recent studies utilising CPT (Resick et al., 2008) indicate that treatment can also be effective if a written narrative is completed. Thus, tfCBT treatments can vary widely in terms of the techniques employed to explore the trauma memory and some researchers may use a combination of all these approaches. In addition, some treatment programmes use other cognitive and behavioural techniques in order to address factors maintaining the client's symptoms. These include stimulus discrimination techniques during in vivo exposure to trauma reminders and behavioural experiments to encourage reduction of safety seeking behaviours (Ehlers et al., 2005).

EMDR treatment is based on the premise that traumatic memories have been ineffectively processed and stored (Shapiro & Maxfield, 2002). Clients are required to recall the traumatic memory (without verbally describing it) whilst concurrently undertaking a "dual-attention" task (e.g. eye movements or taps). Research suggests this treatment is effective as it engages part of a client's working memory, enabling integrative processing of the trauma memory to occur (Shapiro & Maxfield, 2002).

Despite the existence of effective PTSD treatments, these were often not developed with comorbid presentations in mind. Indeed, although it is more likely that an individual will have a comorbid presentation than have PTSD alone, Spinazzola, Blaustein and van der Kolk (2005) report that the presence of a comorbid disorder is a frequently used exclusion criterion for participation in the research trials where these treatments are developed. Whilst this can be important for ensuring the efficacy and specificity of treatments targeting a particular problem, the high rates of comorbidity found in epidemiological studies suggest these selective samples may not accurately

represent the majority of clients seen by therapists working in community settings. Thus, at present there is limited available evidence about the impact of comorbid disorders on the outcome of psychological treatments for PTSD or the effect of these treatments on comorbid disorders.

In order to draw clearer conclusions, this review will focus on the most frequent comorbid diagnosis, depression. Treatment outcome studies report a range of findings, with some indicating depression has negative implications for treatment outcome (Duffy, Gillespie & Clark, 2007), and others suggesting it may even have a positive impact on response to PTSD treatment (Sijbrandij et al., 2007). NICE (2005) concluded there was limited evidence to support trauma-focused CBT and moderate evidence to support EMDR as effective in reducing depression symptoms, as compared to a waiting list control group. However, there are no specific recommendations made regarding treatment adaptations for individuals with comorbid depression, other than that PTSD treatment should be offered in the first instance (NICE, 2005), which may lead to improvement in depression symptoms without the need for specific focus on them. However, it is noted that additional treatment sessions may be necessary in order to manage the comorbid disorder, and depression should be addressed separately if symptoms prevent effective engagement with the PTSD treatment programme (for example, in cases of high risk).

Previous Reviews

There are no existing reviews pertaining specifically to the treatment outcomes of comorbid PTSD and depression. However, a recent review by Olatunji, Cisler and Tolin (2010) explored the impact of comorbidity (all disorders) on the treatment outcomes for anxiety disorders, including PTSD. The authors examined randomised controlled trials (RCTs) employing pharmacological or psychological treatments. For

PTSD (20 child and adult studies), the authors concluded there was a 52% rate of comorbidity. They found that, unlike with some other anxiety disorders, greater comorbidity was associated with greater post-treatment effect sizes (greater improvement). This result was also found for clients where their primary diagnosis was panic disorder or obsessive compulsive disorder. As there was no difference in the rates of comorbidity in these disorders, as compared to other anxiety disorders, no clear explanation was given for this phenomenon, other than that it may indicate unique features of these particular disorders.

Aims of Present Review

The present review builds on previous systematic reviews, by answering the question: Do evidence-based psychological treatments for PTSD also have an impact on comorbid depression symptoms?

Method

Inclusion and Exclusion Criteria

Studies were assessed for inclusion in terms of the population characteristics, the intervention used, the use of outcome measures and the research design.

Population Characteristics

Included studies were required to have:

i) An adult sample i.e. 18 years or above (if small numbers of adolescents aged 16 or 17 were included in a study but offered identical treatment to the adults, these studies were included).

ii) Participants who met DSM-III or IV or ICD-10 criteria for a primary diagnosis of PTSD to a single or multiple traumatic events experienced during childhood or as an adult.

iii) Diagnosis of depression, or symptoms of depression, must also be present or monitored in the study.

Intervention Characteristics

Studies were included only if an evidence-based psychotherapeutic individual (i.e. not group) treatment intervention for PTSD (i.e. CBT (CPT, PE or tfCT) or EMDR) had been delivered. Studies utilising pharmacological interventions were excluded.

Outcome Measures

To evaluate the impact of treatment on PTSD and depression outcomes, it was essential that studies included a symptom evaluation (i.e. diagnostic) measure for both PTSD and depression. Studies which used combination symptom measures (e.g. for anxiety and depression) and did not report on depression separately were excluded.

Research Design

Included studies were randomised controlled trials (RCTs), non-randomised trials or uncontrolled pre/post designs. Case studies, case series and small N designs (fewer than 20 participants completing the study) were excluded.

Publication Details

Articles were required to be empirical studies published in English in a peer-reviewed journal. No date limits were set. Review articles were excluded. Where follow-

up studies or secondary analyses of prior data-sets existed, the findings were consolidated and cited as the earliest published study, unless otherwise specified.

Search Strategy

Searches of electronic databases Medline and PsycINFO were conducted using the Ovid interface on the 25th October 2013. The search terms used were: “PTSD” or “post?traumatic” combined with “treatment outcome” or “treatment response.” “CBT,” “cognitive therapy,” “cognitive behav*,” and “EMDR” were also included in order to focus on evidence-based treatments. Pharmacological interventions were excluded from the search. Terms pertaining to comorbidity were not included to refine the search so as to capture as many potential studies as possible.

After duplicate studies had been removed, a total of 1486 papers were retrieved and all titles and abstracts were screened to see if they met the inclusion criteria. Sixty-six full-text articles were retrieved and reviewed. Nineteen of these met the inclusion criteria. To ensure that all relevant articles were included, existing systematic review papers and reference lists from all included papers were examined and screened against the inclusion criteria identifying another 22 articles. Further to this, one very recently published article also relevant to the review was also included. Six studies were classified as follow-up or secondary analysis. These studies were consolidated with earlier publications. This resulted in a total of 35 articles being included in the review (see Figure 1).

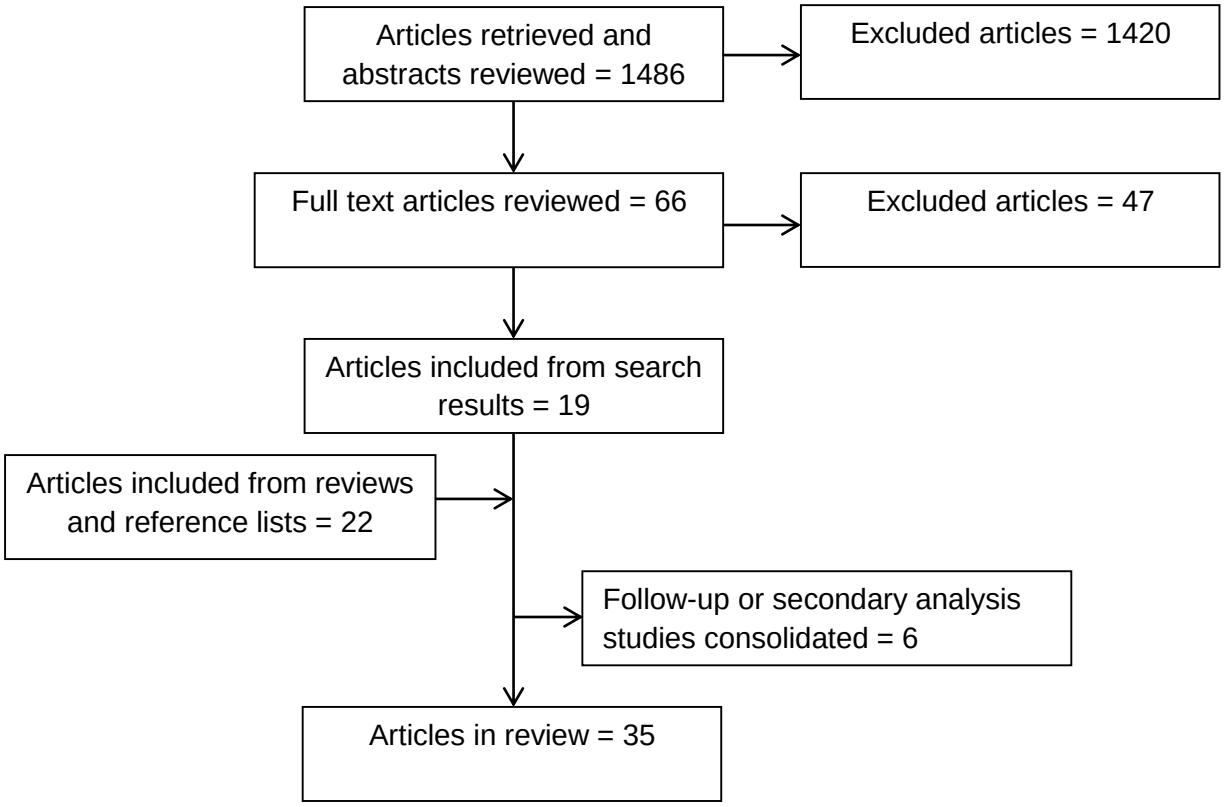

Figure 1: Search procedure

Study Quality Assessment

The methodological quality of the studies was assessed using Downs and Black's (1998) checklist. This is designed to be suitable for the evaluation of quantitative randomised and non-randomised designs. Studies are rated on 27 items (out of a total score of 28) pertaining to the quality of data reporting, external validity, bias, confounding variables and power. Item 27 (power) was modified for the purposes of this review and a binary scoring system (0 = insufficient power (or no information available); 1 = power analysis reported, study has sufficient power) was used instead of the six-point scale used in the original version.

Results

Overview of Studies

Thirty-five studies met the inclusion criteria. Where studies have been consolidated, sample characteristics for only the earliest publication are reported below. Table 1 summarises the findings from all studies.

Studies were undertaken in the following countries: the USA (15), the UK (9), Australia (4), Canada (3), the Netherlands (3) and Sweden (1). In terms of sample characteristics, 18 studies were community samples with a range of different traumas. Among the other studies, sample populations included: veterans (6), physical or sexual assault victims (5), road traffic accident survivors (2), childhood abuse survivors (2), refugees (1) and public transport employees (1). Across the studies, gender and age distribution was not consistently reported, but where it was available it varied widely. Some studies selected only participants of a particular gender (seven female only, two male only). In the remaining studies, the proportion of female participants ranged from 3% to 85%. Most studies included adults of working age (ranging from 17 to 83), with none focusing specifically on an older adult population.

Thirty-one of the studies used a CBT approach (including PE, tfCT, CPT) as one of the active treatment groups. Seven studies compared different types of CBT approaches (e.g. CPT vs PE; Resick, Nishith, Weaver, Astin & Feuer, 2002) or techniques such as cognitive restructuring (e.g. PE vs CR vs PE+CR; Marks, Lovell, Noshirvani, Livanou & Thrasher, 1998). Nine studies included EMDR as one of the active treatments for investigation, with six of these directly comparing the performance of EMDR against a CBT approach. In terms of study design, 18 were RCTs, comparing the treatment against a control condition (active or inactive). Ten were pseudo-RCTs, where randomisation procedures were not sufficiently stringent to ensure true random

allocation to different treatment conditions). Seven utilised an uncontrolled (pre-post) design. Length of treatment varied substantially across studies, ranging from three to nineteen sessions. Some employed strict protocols for the number of sessions attended by the client for them to be considered a “treatment completer”, whereas others were more flexible based on client need and therapist clinical judgement.

In regards to the measurement of PTSD and depression symptoms, details of the outcome measures used are summarised in Tables 2 and 3. The findings and limitations of the studies follow.

Table 1:
Included Studies

Study and Country	*Population*	*Design (Quality Rating)*[a]	*Treatment/ Comparators (n: Starters/ Completers)*	*Treatment Length*	*PTSD Measures*[b]	*Depression Measures*[c]	*Main Findings*
Belleville et al. (2011); Canada	Community sample	Pre-post (18)	CBT (94/55)	Mean sessions: 19.06 (SD=3.03)	MPSS-SR	BDI	CBT improved PTSD and depression symptoms.
Bryant et al. (2003); Australia	Community sample	RCT (21)	PE (20/15) PE+CR (20/15) SC (18/15)	8 session protocol	CAPS; IES	BDI	Both PE and PE+CR were superior to SC for improving PTSD and depression symptoms. PE+CR produced more improvement in depression symptoms than PE alone.
Carlson et al. (1998); USA	Male veterans	RCT (17)	EMDR (10/10) Relaxation (13/12) TAU (12/12)	12 session protocol	CAPS; IES; M-PTSD	BDI	EMDR was more effective than relaxation for reducing PTSD and depression.
Cloitre et al. (2002); USA	Female childhood abuse victims	RCT (19)	STAIR+PE (31/22) WL (27/24)	16 session protocol	CAPS; MPSS-SR	BDI	STAIR+PE improved PTSD and depression symptoms.
D'Ardenne et al. (2007); UK	Refugees and community sample	Pre-post (15)	CBT (PE and tfCT) (128/128)	Mean sessions: 9.0	IES	BDI	CBT improved PTSD and depression symptoms for refugees and non-refugees, including those utilising an interpreter.
Devilly and Spence (1999); Australia	Community sample	Pseudo-RCT[d] (16)	EMDR (17/11) TTP (SIT+PE) (15/12)	9 session protocol	CMS; IES; PSS-SR; PTSD-I	BDI	TTP was more effective in reducing PTSD and depression symptoms than EMDR. Gains were maintained at three month follow-up.
Duffy et al. (2007); UK	Community sample (Omagh bombing)	RCT (18)	TfCT (29/--) WL (29/--) 12 dropouts (no group specified)	Mean sessions: 7.8 (SD=5.1)	PDS	BDI	PTSD and depression improved following tfCT. More sessions were given where there was a comorbid diagnosis. Higher baseline depression scores were associated with less improvement in treatment.

Study and Country	*Population*	*Design (Quality Rating)*[a]	*Treatment/ Comparators (n: Starters/ Completers)*	*Treatment Length*	*PTSD Measures*[b]	*Depression Measures*[c]	*Main Findings*
Ehlers et al. (2003); UK	RTA survivors	RCT (23)	TfCT (28/28) SH (28/25) RA (29/27)	Mean of 9.0 weekly and 2.4 follow-up sessions	CAPS; PDS	BDI	TfCT was better than SH or RA for improving symptoms of PTSD and depression.
Ehlers et al. (2005); UK	Community sample	RCT (19)	TfCT (14/14) WL (14/14)	Mean of 10.0 weekly (SD=2.9) and 2.4 (SD=1.1) follow-up sessions	CAPS; PDS	BDI	TfCT produced significantly greater reductions in PTSD and depression symptoms than WL. Gains were maintained at six month follow-up. Comorbid diagnosis at baseline did not predict outcome.
Ehlers et al. (2013); UK	Community sample	Pre-post (23)	TfCT (330/284)	Mean of 10.6 (SD=5.0) weekly and 2.0 (SD=3.0) follow-up sessions	PDS	BDI	TfCT produced significant improvements in PTSD and depression symptoms which were maintained at one year follow -up. Comorbid diagnosis at baseline did not moderate outcome.
Fecteau and Nicki (1999); Canada	RTA survivors	Pre-post (24)	CBT (12/10) WL (11/10)	4 2hr session protocol	CAPS; IES	BDI	CBT produced post-treatment improvements in PTSD symptoms. Depression symptoms did not improve until six month follow-up.
Feske (2008); USA	Low-income female assault victims	RCT (16)	PE (13/9) TAU (14/12)	PE mean sessions: 9.3 (SD=1.0); TAU mean sessions: 9.5 (SD=1.2)	IES-R; PDS	BDI	PE performed better than TAU in improving PTSD and depression symptoms post-treatment.
Foa et al. (1999); USA	Female assault victims	RCT (20)	PE (25/23) SIT (26/19) PE+SIT (30/22) WL (15/15)	9 session protocol	PSS-I	BDI	All treatments reduced PTSD and depression compared to WL, with no differences between conditions. Gains were maintained at 12 month follow-up.
Foa et al. (2005); USA	Female assault victims	RCT (23)	PE (79/52) PE+CR (74/44) WL (26/25)	9-12 session protocol	PSS-I; PSS-SR	BDI	Both PE and PE+CR were more effective in reducing PTSD and depression symptoms than the WL condition. Addition of CR did not augment outcomes.

Study and Country	*Population*	*Design (Quality Rating)*[a]	*Treatment/ Comparators (n: Starters/ Completers)*	*Treatment Length*	*PTSD Measures*[b]	*Depression Measures*[c]	*Main Findings*
Forbes et al. (2012); Australia	Veterans	RCT (27)	CPT (30/24) TAU (29/23)	CPT mean sessions: 10.27 (SD=4.93); TAU mean sessions: 6.31 (SD=4.68)	CAPS; PCL	BDI	CPT improved PTSD and depression symptoms compared to TAU.
Galovski et al. (2012); USA	Assault victims	RCT (21)	MCPT (53/33) Symptom monitoring (47/37)	Flexible protocol up to 18 sessions	CAPS; PDS	BDI	MCPT produced improvements in PTSD and depression symptoms compared to control condition.
Gillespie et al. (2002); UK	Consecutive community referrals (Omagh bombing)	Pre-post (14)	TfCT (--/91)	Median of 8 sessions	IES; PDS	BDI	TfCT improved PTSD and depression symptoms. Comorbid diagnosis at baseline did not influence treatment outcome but more sessions were offered where one was present.
Hogberg et al. (2007); Sweden	Public transport employees	RCT (20)	EMDR (13/12) WL (11/9)	5 session protocol	IES; SCID-I	HAM-D	Brief EMDR protocol was more successful than WL in reducing PTSD and depression symptoms.
Ironson et al. (2002); USA	Community sample	Pseudo-RCT[d] (16)	EMDR (10/10) PE (15/12)	3 active treatment sessions protocol	PSS-SR	BDI	Both EMDR and PE were effective in reducing depression and PTSD symptoms. Gains were maintained at three month follow-up. There were no differences between the two treatments.
Keane et al. (1989); USA	Male Vietnam veterans	RCT (16)	Flooding (--/11) WL (--/13) No dropout	14 session protocol	MMPI (PTSD subscale)	BDI; Zung Depression Scale	Flooding treatment reduced re-experiencing symptoms of PTSD. Depression symptoms also improved.
Lee et al. (2002); Australia	Community sample	Pseudo-RCT[d] (17)	SIT+PE (13/12) EMDR (13/12)	7 session protocol	IES; SI-PTSD	BDI	Both SIT+PE and EMDR reduced PTSD and depression symptoms. There were no differences in effectiveness between the two treatment conditions.

Study and Country	*Population*	*Design (Quality Rating)*[a]	*Treatment/ Comparators (n: Starters/ Completers)*	*Treatment Length*	*PTSD Measures*[b]	*Depression Measures*[c]	*Main Findings*
Marcus et al. (1997) (Marcus et al., 2004); USA	Community sample	Pseudo-RCT[d] (13)	EMDR vs. TAU N= 67 (No group information)	EMDR mean sessions: 6.5;TAU not available	IES; MPSS-SR	BDI	EMDR was more effective than TAU in reducing PTSD and depression symptoms. Gains were maintained at six month follow-up (Marcus et al., 2004).
Marks et al. (1998); UK	Community sample	Pseudo-RCT[d] (24)	PE (23/20) CR (19/18) PE+CR (24/19) Relaxation (21/20)	10 session protocol	CAPS; IES; PSS-SR	BDI	PE, CR and PE+CR were all superior to relaxation in improving PTSD and depression symptoms. Combination treatment did not enhance outcomes.
McDonagh et al. (2005); USA	Female childhood sexual abuse victims	RCT (18)	CBT (29/17) PCT (22/19) WL (23/20)	14 session protocol	CAPS	BDI	CBT was more effective than PCT in reducing PTSD symptoms, but PCT was still effective. Neither PCT nor CBT differed from WL in reducing depression symptoms.
Monson et al. (2006); USA	Veterans	RCT (22)	CPT(30/24) WL (30/26)	12 session protocol	CAPS; PDS	BDI	CPT reduced PTSD and depression symptoms compared to WL.
Nijdam et al. (2012); The Netherlands	Community sample	Pseudo-RCT[d] (23)	EMDR (70/45) BEP (70/50)	EMDR mean sessions (90mins): 6.5 (SD=3.8); BEP mean sessions (45mins): 14.7 (SD=4.5)	IES; SCID-I; SI-PTSD	HADS; SCID-I	EMDR and BEP were equally effective in reducing PTSD and depression symptoms. EMDR led to quicker decline in both PTSD and depression symptoms.
Power et al. (2002) (Karatzias et al., 2007); UK	Community sample	Pseudo-RCT[d] (21)	EMDR (39/27) PE+CR (37/21) WL (29/24)	EMDR mean sessions: 4.2 (SD= 2.5); PE+CR mean sessions: 6.4 (SD=3.2)	CAPS; IES; SI-PTSD Checklist	HADS; MADRS	EMDR and PE+CR were superior to the WL in reducing PTSD and depression symptoms. EMDR produced a greater reduction than PE+CR in self-reported PTSD and depression symptoms. Gains were maintained at 15 month follow-up.

Study and Country	*Population*	*Design (Quality Rating)*[a]	*Treatment/ Comparators (n: Starters/ Completers)*	*Treatment Length*	*PTSD Measures*[b]	*Depression Measures*[c]	*Main Findings*
Resick et al. (2002) (Resick et al., 2012; Rizvi et al., 2008; Stein et al., 2012); USA	Female rape victims	RCT (18)	CPT (62/41) PE (62/40) WL (47/40)	12 session protocol	CAPS; PDS	BDI; SCID-I	Both CPT and PE were superior to WL in reducing symptoms of PTSD and depression in both chronic and recent-onset PTSD. Gains were maintained at long term follow-up (Resick et al., 2012).
Resick et al. (2008); USA	Female community sample	RCT (23)	CPT (56/27) CPT-C (51/29) WA (55/30)	12 session protocol	CAPS; PDS	BDI; SCID-I	All treatments were effective in reducing PTSD and depression symptoms, but on self-report measures CPT-C outcomes were superior to WA. Self-report outcomes for CPT did not differ from CPT-C. At post-treatment, CPT performed better than WA, but by six month follow-up there was no difference between the conditions.
Sijbrandij et al. (2007); The Netherlands	Acute PTSD (< 3 months since trauma)	Pseudo-RCT[d] (22)	Brief CBT (79/62) WL (64/64)	4 session protocol	SI-PTSD	HADS	At one week post-treatment, CBT demonstrated greater reduction in PTSD and anxiety/depression symptoms. At four month follow-up, there were no longer differences between CBT and WL conditions. Enhanced efficacy was reported for clients with baseline comorbid depression.
Suris et al. (2013); USA	Veterans with military-related sexual trauma	Pseudo-RCT[d] (24)	CPT (72/44) PCT (57/44)	Mean sessions: 10.1 (SD=3.3)	CAPS; PCL	QIDS	Both CPT and PCT produced improvements in PTSD and depression symptoms post-treatment.
Tarrier et al. (1999, 2000); UK	Community sample	RCT (21)	PE (35/29) CT (CR) (37/33)	CT mean sessions: 11.9 (SD=4.6); PE mean sessions: 10.4 (SD=4.2)	CAPS; IES; Penn Inventory for PTSD	BDI	PE and CT were effective in reducing PTSD and depression symptoms with no differences between conditions. Gains were maintained at six month follow-up. Subsequent analyses indicate depression at baseline was not directly related to outcome (Tarrier, 2000).

Study and Country	*Population*	*Design (Quality Rating)*[a]	*Treatment/ Comparators (n: Starters/ Completers)*	*Treatment Length*	*PTSD Measures*[b]	*Depression Measures*[c]	*Main Findings*
Taylor et al. (2003); Canada	Community sample	Pseudo-RCT[d] (17)	PE (22/15) EMDR (19/15) Relaxation (19/15)	8 session protocol	CAPS; PDS	BDI	PE was superior to relaxation in reducing PTSD symptoms. PE and EMDR and EMDR and relaxation did not differ from each other. All treatments effectively reduced depression symptoms.
Tuerk et al. (2011); USA	Veterans	Pre-post (15)	PE (65/39)	Completers mean sessions: 10.0 (SD=4)	PCL-M	BDI	PE produced improvements in PTSD and depression symptoms. More time in treatment was related to better outcomes.
Van Minnen et al. (2002); The Netherlands	Community sample	Pre-post (15)	PE (122/88)	9 session protocol	PSS-SR	SCL (Dutch version)	PE produced improvements in PTSD and depression symptoms which were maintained at one month follow-up. The presence of depression was not related to treatment outcome.

[a] See Appendix B for Down and Black's quality ratings in full.

[b] See Table 2 for details of PTSD measures.

[c] See Table 3 for details of depression measures.

[d] Pseudo-RCT refers to trials where randomisation procedures were not sufficiently stringent to ensure random allocation.

Note: Abbreviations for PTSD and depression measures are given in Tables 2 and 3. See Appendix A for list of treatment abbreviations.
CBT = Cognitive behavioural therapy; PE = Prolonged exposure; CR = Cognitive restructuring; SC = Supportive counselling; EMDR = Eye movement desensitisation and reprocessing therapy; TAU = Treatment as usual; STAIR = Skills training in affective and interpersonal regulation; WL = Waiting list; tfCT = Trauma-focused cognitive therapy; TTP = Trauma treatment protocol; SIT = Stress inoculation training; SH = Self-help; RA = Repeated assessment; CPT = Cognitive processing therapy; MCPT = Modified cognitive processing therapy; BEP = Brief eclectic psychotherapy; PCT = Present centred therapy; CPT-C = Cognitive processing therapy, cognitive component only (no written account); WA = Written account (done in session); CT = Cognitive therapy.

Table 2:
PTSD Outcome Measures

Measure	*Description*	*Number of Studies*
CAPS (Clinician Administered PTSD Scale; Blake et al.,1995)	Assessor rated; 34 items measuring the frequency and intensity of DSM-IV PTSD symptom criteria	17
CMS (Civilian Mississippi Scale for PTSD; Keane, Caddell & Taylor, 1988)	Self-report; 39 items measuring DSM-IV PTSD symptom criteria	1
IES (Impact of Events Scale; Horrowitz, Wilner & Alvarez, 1979)	Self-report; 15 items measuring avoidance and intrusion symptoms	14
MMPI (Multiphasic Personality Inventory, PTSD Subscale; Keane, Malloy, & Fairbank, 1984)	Self-report; 49 items taken from full MMPI that have been demonstrated to indicate the presence of PTSD	1
MPSS-SR (Modified PTSD Symptom Scale - Self-Report; Falsetti, Resnick, Resick & Kilpatrick, 1993)	Self-report; 17 items measuring the frequency and severity of DSM criteria for PTSD symptoms	3
M-PTSD (Mississippi Scale for Combat-related PTSD; Keane, Caddell & Taylor, 1988)	Self-report; 35 items measuring DSM PTSD criteria	1
PCL (PTSD Checklist; Weathers, Litz, Hermn, Huska & Keane, 1993)	Self-report: 17 items measuring DSM-IV criteria for PTSD symptoms	2
PCL-M (PTSD Checklist-Military Version; Weathers, Huska & Keane, 1991)	Self-report; 17 items measuring DSM-IV PTSD symptom criteria	1
PDS (Posttramatic Diagnostic Scale; Foa, Cashman, Jaycox & Perry, 1997)	Self-report; 17 items measuring the frequency and severity of DSM-IV PTSD symptom criteria	11
Penn Inventory for Posttraumatic Stress Disorder (Hammarberg, 1992)	Self-report; 26 items measuring the severity of PTSD symptoms	1
PSS-I (PTSD Symptom Scale - Interview; Foa, Riggs, Dancu & Rothbaum, 1993)	Assessor rated; 17 item interview assessing severity of DSM PTSD symptom criteria	2
PSS-SR (PTSD Symptom Scale - Self Report; Foa et al., 1993)	Self-report; 17 items measuring DSM PTSD symptom criteria	5

Measure	*Description*	*Number of Studies*
PTSD-I (PTSD Interview; Watson, Juba, Manifold, Kucala & Anderson, 1991)	Assessor rated; 19 item interview measuring the severity and frequency of DSM-III-R symptoms or PTSD	1
SCID-I (Structured Clinical Interview for DSM-IV; First, Sptizer, Gibbon & Williams, 1996)	Assessor rated; Modular clinical interviews to diagnose different Axis I disorders as per DSM-IV criteria	2
SI-PTSD (Structured Interview for PTSD; Davidson, Smith & Kudler, 1989)	Assessor rated; 13 item interview based on DSM-III criteria for PTSD symptoms	3
SI-PTSD Checklist (Structured Interview for PTSD Checklist; Davidson, Smith & Kudler, 1989)	Self-report; 12 items measuring the severity of DSM symptoms	1

Table 3:
Depression Outcome Measures

Measure	*Description*	*Number of studies*
BDI (Beck Depression Inventory; Beck, Ward, Mendelsohn, Mock & Erbaugh, 1961)	Self-report; 21 items measuring symptoms of depression	29
HADS (Hospital Anxiety and Depression Scale; Zigmond & Snaith, 1983)	Self-report; 14 items measuring the frequency of symptoms; subscales for anxiety and depression	3
HAM-D (Hamilton Rating Scale for Depression; Hamilton, 1960)	Assessor rated; 21 items measuring depression symptoms	1
MADRS (Montgomery Asberg Depression Rating Scale; Montgomery & Asberg, 1979)	Assessor rated; 10 items measuring symptoms of depression	1
QIDS (Quick Inventory of Depressive Symptomatology; Rush, et al., 2003)	Self-report; 16 items measuring 9 DSM-IV depression symptoms	1
SCID-I (Structured Clinical Interview for DSM-IV; First, Sptizer, Gibbon & Williams, 1996)	Assessor rated; Modular clinical interviews to diagnose different Axis I disorders as per DSM-IV criteria	3
SCL-90-R (Symptom Check List -Depression subscale, Dutch adaptation; Arrindell & Ettema, 1986)	Self-report; 16 items measuring depression symptoms	1
Zung Depression Scale (Zung, 1965)	Self-report; 20 items measuring symptoms of depression	1

Results of studies are presented below, organised by the type of treatment intervention. CBT studies are reported in three sections: prolonged exposure (PE), trauma-focused cognitive therapy (tfCT) and cognitive processing therapy (CPT). Subsequently, EMDR studies are presented, followed by studies which compare CBT with EMDR treatments. In line with the aims of this review, the focus of the results presented below is on the outcomes of depression symptoms. However, PTSD outcomes have also been reported to identify any impact of comorbid depression symptoms on response to PTSD treatment.

Cognitive Behavioural Therapy

As aforementioned, CBT treatments encompass a wide range of therapeutic approaches, underpinned by different theoretical stances and with diverse outcome objectives. Whilst some studies described the treatment protocols used in detail and adhered to these closely, for other studies there was more flexibility for clinicians to utilise a broad range of CBT techniques as they saw fit. Thus, although CBT approaches are separated into three broad categories for the purposes of this review, it is important to note that many studies may have used a range of cognitive and behavioural techniques (e.g. cognitive restructuring) without providing specific details of these. Therefore, the findings reported below offer only an indication of the results of each approach, based on the information available.

Cognitive-Behavioural Therapy/Prolonged Exposure

Twenty studies used CBT or PE as an active treatment. The six studies which compared PE or CBT with EMDR or CPT treatments are described in detail below. Of the 15 remaining studies that compared PE with a control or other CBT treatment, or used no comparison condition, seven were conducted in the USA, three in the UK, two

in both Canada and the Netherlands and one in Australia. A wide range of target populations were represented including veterans, refugees, assault victims and survivors of childhood abuse. One sample was all male, and four were all female. Intervention length ranged from 4 to 19 sessions which were typically between one and two hours in duration. Sample size varied widely across studies, from 20 to 128 study completers. Where information was available, dropout rates were sometimes high, ranging from 8% (Foa et al., 1999; PE condition) to 42% (Belleville, Guay & Marchand, 2011).

In terms of design, three pre-post studies (Belleville et al., 2011; Tuerk et al., 2011; Van Minnen, Arntz, & Keijsers, 2002) examined the effectiveness of PE or CBT without a comparison group, looking at the applicability of treatments derived from RCTs to community populations. One study (D'Ardenne, Ruaro, Cestari, Fakhoury & Priebe, 2007) utilised both PE and tfCT techniques with a sample including refugees who required an interpreter, but did not compare these treatments. Five studies (Fecteau & Nicki, 1999; Feske, 2008; Keane, Fairbank, Caddell & Zimering, 1989; McDonagh et al., 2005; Sijbrandij et al., 2007) compared PE or CBT to a waiting list or control treatment condition, such as a psychotherapy with no focus on the trauma memory, supportive counselling or treatment as usual. Of these, one used a pre-post design, three were RCTs and one was a pseudo-RCT.

Two RCT studies explicitly combined PE with additional CBT techniques. Foa et al. (1999) compared the effects of PE with a combination of stress inoculation training (SIT; coping and relaxation skills) and PE and SIT alone. Cloitre, Koenen, Cohen and Han (2002) focused on a population of childhood abuse survivors and offered eight sessions of affective and interpersonal skills training (STAIR) prior to eight sessions of PE with a view to improving the effectiveness and acceptability of treatment for this population and reducing attrition.

Four studies (Bryant, Moulds, Guthrie, Dang & Nixon, 2003; Foa et al., 2005; Marks et al., 1998; Tarrier et al., 1999) explored the use of cognitive restructuring (CR) as an independent treatment or as an adjunct to PE. Three of these were RCTs and one was a pseudo-RCT.

PE and CBT studies varied in their quality ratings (see Appendix B). A major issue affecting several studies was that participants were not recruited in a way that ensured they were representative of the population from which they came (e.g. not consecutive referrals). Furthermore, many studies were conducted at specialist facilities not otherwise available in the community, which may have biased the results obtained. The majority of studies did include randomisation procedures but it was not always clear if this had been done independently. In two studies, although they reported to use random allocation of participants, the procedures used were not sufficiently stringent to ensure true randomisation. Several studies had made efforts to use independent assessors, but some researchers did not take this precaution. A common methodological problem across all studies was the reliance on self-report measures to monitor depression symptoms post-treatment in the absence of any assessor-rated diagnostic measures for independent measurement of this.

All PE and CBT studies reported that PTSD symptoms improved post-treatment for the active treatment group. Further, all but two studies also reported post-treatment improvement in depression symptoms in the active treatment condition(s). However, there were some exceptions. McDonagh et al. (2005) compared CBT with a control treatment, present-centred therapy (PCT). PCT does not involve discussion of trauma-related memories or appraisals, but instead focuses on interpersonal relationships and problem solving surrounding issues related to PTSD symptoms. Surprisingly, despite involving no direct trauma memory work, PCT was also found to be effective at reducing PTSD symptoms. The authors reported that neither CBT nor PCT significantly

improved depression symptoms compared to a waiting list condition. Furthermore, Fecteau and Nicki (1999) reported no reduction in depression scores in the CBT group until six month follow-up.

Of interest is a RCT by Sijbrandij et al. (2007) looking at the efficacy of an intensive, brief CBT treatment for acute PTSD (less than 3 months post-trauma). The authors reported that although both PTSD and depression improved at one week post-treatment, by four month follow-up there was no difference in symptomatology between the PE and waiting list groups, due to remission in the control group's symptoms over the waiting period. Of additional note is that two studies also specifically reported that baseline depression scores were not related to post-treatment PTSD outcomes (Tarrier, Sommerfield, Pilgrim & Faragher, 2000; Van Minnen et al., 2002).

Of the studies that combined PE with additional CBT techniques, Foa et al. (1999) reported that PE, SIT and PE + SIT were all equally effective in reducing depression symptoms. Of the studies utilising CR, Tarrier et al. (1999) reported that PE and CR were effective in reducing symptoms of depression, with no significant differences between the two conditions. A combination treatment of PE with CR was found by all three studies to be more effective than the respective control conditions (Bryant et al., 2003; Foa et al., 2005; Marks et al., 1998). However, only Bryant et al. (2003) found that depression outcomes were enhanced by combining PE and CR, compared to using PE alone. Again, it is important to note that several other studies may have also used CR as an ad-hoc adjunct to a PE protocol where the therapist believed this to be clinically relevant, but did not specifically explore the impact of including this on treatment outcomes. For all the above studies, where information was available, gains made in PTSD and depression symptoms were maintained at follow-up.

Overall, PE and CBT treatments have been demonstrated to be effective in reducing comorbid depression symptoms post-treatment. However, these studies vary widely in the therapeutic techniques they utilise and several studies suffer from significant methodological problems, which have implications for the generalisability of their findings.

Trauma-Focused Cognitive Therapy

Five UK-based studies examining the treatment outcomes of tfCT were included in this review. All studies used a mixed-gender sample, ranging in size from 24 to 284 study completers. Two studies included a mixed community sample, two studies focused on the aftermath of the Omagh bombing in Northern Ireland in 1998 and one study included only survivors of road traffic accidents. In general, intervention length was between 8 and 10 sessions. Where reported, attrition rates were fairly low (up to 21% for Duffy, Gillespie & Clark, 2007), with two studies reporting all individuals in the tfCT condition completed treatment.

Three studies were RCTs, of which two used a waiting list control (Duffy et al., 2007; Ehlers et al., 2005) and one used both a self-help and a repeated assessment control condition (Ehlers et al., 2003). Two studies (Ehlers et al., 2013; Gillespie et al., 2002) were pre-post audits of community samples employing broader inclusion criteria than the RCTs to explore whether treatments could be effectively disseminated in community services.

All studies reported that tfCT was effective in reducing both PTSD and comorbid depression symptoms. Where data were available, treatment gains were maintained at follow-up.

Of interest is that four of the above studies reported explicitly that a comorbid diagnosis (including, but not limited to, major depression) at the start of treatment did

not predict or influence the reduction of PTSD symptoms at the end of treatment. However, Duffy et al. (2007) noted that higher levels of depression at baseline was associated with poorer outcomes and recommended giving clinicians the flexibility to offer additional treatment sessions or incorporate behavioural activation techniques to address this issue, where clinically relevant.

When evaluated against Downs and Black's (1998) study quality checklist, tfCT studies were overall fairly methodologically sound (see Appendix B). Samples were sufficiently large to have statistically significant findings, but power was not explicitly calculated or reported for any studies. Three studies attempted to use samples representative of the population from which they were drawn by including consecutive referrals. However, limited attempts were made to determine whether included participants were indeed representative of their source population. Two studies (Duffy et al., 2007; Gillespie et al., 2002) suffered from some major methodological problems, particularly a lack of information regarding the flow of participants in the study (e.g. recruitment and the characteristics of those who dropped out of the study). Two of the RCTs (Ehlers et al., 2003; Ehlers et al., 2005) used independent randomisation of participants and blind assessors for PTSD outcomes. However, all studies relied only on self-report outcome measures for depression symptoms.

Overall, tfCT appears to be an effective in improving comorbid depression symptoms. The studies examining it were fairly methodologically sound, and included attempts to explore the effectiveness of tfCT in wider clinical populations.

Cognitive Processing Therapy

Five RCT studies and one pseudo-RCT, five from the USA and one from Australia, explored the use of CPT for PTSD. Three of these studies used a sample of veterans, two used a sample of rape and/or assault victims and one used a community

sample with range of traumas. Two of the samples were all-female and sample size ranged from 44 to 121 study completers. Two studies compared CPT with an inactive control condition i.e. waiting list (Monson, et al., 2006) or symptom monitoring (Galovski, Blain, Mott, Elwood, & Houle, 2012). Two studies used active control treatments as comparators: treatment as usual (Forbes et al., 2012) and present centred therapy (described above; Suris, Link-Malcolm, Chard, Ahn, & North, 2013). Resick et al. (2002) compared CPT with another existing evidenced-based treatment, PE, whereas Resick, et al. (2008) dismantled components of CPT and compared them against each other. On average, interventions lasted between 10 and 12 sessions. Attrition rates for CPT treatment ranged from 20% (Monson et al., 2006; Forbes et al., 2012) to 52% (Resick et al., 2008).

Methodologically, when rated against the Downs and Black (1998) checklist, CPT trials were generally of high quality (see Appendix B). Attempts had been made in all studies to randomise participants and to blind assessors. However, one study was considered a pseudo-RCT (Suris et al., 2013) as randomisation procedures were not sufficiently stringent. As with other CBT studies, all except one study (Forbes et al., 2012) did not make attempts to ensure their participants were representative of the population from which they were taken, and conducted the research at facilities not available to the general population. Power calculations were considered for all studies (although not calculated by Resick et al., 2002), and sample sizes were sufficient to draw robust conclusions about the effect of the intervention.

Compared to non-active control conditions and treatment as usual (Forbes et al., 2012; Galovski et al., 2012; Monson et al., 2006) CPT treatments produced improvements post-treatment in PTSD and depression symptoms. Suris et al. (2013) reported that as found by McDonagh et al. (2005), PCT was also effective in reducing PTSD and depression symptoms.

Resick et al. (2002) compared CPT with PE and found both treatments were more effective in reducing PTSD and depression symptoms than the waiting list control. A methodological strength of this study is that unlike most other CPT/CBT studies, they also utilised an assessor-rated diagnostic measure of depression post-treatment. For those who completed treatment, 46% in the CPT group and 53% in the PE group met diagnostic criteria for depression pre-treatment. By nine month follow-up this had dropped to 4% for CPT and 15% for PE. This indicates a trend towards the CPT group having slightly better outcomes but group differences were not significant. These gains were maintained at long term follow-up (Resick, Williams, Suvak, Monson & Gradus, 2012).

In a dismantling study of CPT, Resick et al. (2008) compared full CPT with two other conditions comprised of hypothesised essential components of CPT: the written account only (WA) and cognitive therapy with no focus on trauma memory (CPT-C). Results indicated that all treatments were effective in reducing PTSD and depression symptoms. As for Resick et al. (2002), this study also included an assessor-rated diagnostic measure for depression post-treatment, which revealed that although 51% of treatment completers met diagnostic criteria for depression pre-treatment, by six month follow-up this had reduced to 13%. Self-report outcomes showed a similar pattern. No group differences were found on either assessor-rated measure or on self-report measures.

Overall, CPT treatments are very effective at reducing comorbid depression symptoms. Studies were fairly methodologically sound. Most samples are large, but some were badly affected by attrition, thus affecting the power and generalisability of some studies.

Summary of Cognitive-Behavioural Treatments

CBT approaches appear to be effective in reducing comorbid depression symptoms for a range of different populations presenting with PTSD, with some evidence to suggest that these gains are maintained post-treatment. Attrition rates varied substantially across interventions, but there was often limited discussion around treatment dropout, and different studies may have utilised different criteria to define early termination of treatment. This makes it challenging to establish whether particular approaches or protocols are more acceptable or tolerable to clients than others.

Studies evaluating CBT treatments encompassed a wide range of theoretical rationales, treatment protocols (e.g. length and content of treatment) and methodological designs. Although there were several studies of very high methodological quality, which used large, randomised samples, many others were affected by potentially biased samples, and a lack of blinded independent assessments.

Two studies also reported that PCT performed as well as CBT (McDonagh et al., 2005; Suris et al., 2013), and CPT-C also produced good results (Resick et al., 2008). This may indicate that individuals with PTSD and comorbid depression can still gain substantial benefit from treatments not directly focusing on their traumatic memories. Thus, on the basis of these studies it is somewhat difficult to draw strong, generalised conclusions about the specific mechanisms contributing to symptomatic improvement for treatments falling under the umbrella of CBT.

Eye Movement Desensitisation and Reprocessing

Nine studies utilised EMDR as an active treatment. Three were conducted in the USA, two in Australia, with one study each conducted in the UK, Canada, the Netherlands and Sweden. Seven studies utilised mixed-gender community samples with a range of traumatic experiences represented. One study focused on traumatised

public transport workers and one on male veterans. Sample size varied from 21 to 95 study completers. Two studies reported no dropouts from EMDR treatment (Carlson, Chemtob, Rusnak, Hedlund & Muraoka, 1998; Ironson, Freund, Stauss & Williams, 2002). Length of intervention varied from 5 to 12 sessions. Where information was available, attrition rates ranged from 8% (Lee, Gavriel, Drummond, Richards & Greenwald, 2002; Hogberg et al., 2007) to 36% (Devilly & Spence, 1999).

Two RCTs (Carlson et al., 1998; Hogberg et al., 2007) and one pseudo-RCT (Marcus, Marquis & Sakai, 1997) looked at EMDR treatments compared to a control condition. Hogberg et al. (2007) compared brief EMDR treatment to a waiting list group and found that post-treatment, the EMDR group reported reduced depression symptoms compared to the waiting list group. A methodological strength of this study is that it used an assessor-rated measure of depression, rather than relying on self-report measures only.

Carlson et al. (1998) reported that EMDR was more effective than treatment as usual and relaxation in reducing depression symptoms, but Marcus, Marquis and Sakai (2004) noted a difference between groups on depression scores only at six month follow-up. Of interest is that Marcus et al. (1997) indicated that the greatest symptomatic improvements in the EMDR group were often made in the first three sessions.

When rated against Downs and Black's (1998) checklist, several methodological problems were apparent across the studies. All had used randomisation procedures but none reported that they had utilised blind independent assessors. Marcus et al. (1997) in particular reported very limited information about the recruitment procedures and the characteristics and progress of participants included in the study. No power calculations were reported and sample sizes were low in all three studies.

Summary of Eye Movement Desensitisation and Reprocessing Studies

These studies indicate EMDR is an effective treatment for reducing comorbid symptoms of depression, sometimes after only a brief period of treatment focused on PTSD. However, these studies were affected by several methodological problems, including small sample sizes. Results indicated that gains are maintained in the short term, but no long term follow-up information was available.

Comparing Eye Movement Desensitisation and Reprocessing and Cognitive Behavioural Therapy

Six studies compared EMDR directly with CBT, with a variety of CBT interventions being utilised. Two studies used PE alone (Taylor et al., 2003; Ironson et al., 2002) and two studies incorporated other specific CBT techniques such as cognitive restructuring (Power et al., 2002) and stress inoculation training (Lee et al., 2002). Two studies used comparison treatments incorporating a range of CBT techniques. Nijdam, Gersons, Reitsma, de Jongh and Olff (2012) used brief eclectic psychotherapy, a PE-based paradigm, which also includes cognitive restructuring, with a focus on grief work. Devilly and Spence (1999) developed a Trauma Treatment Protocol (TTP) which included aspects of PE, SIT and CT. All studies were pseudo-RCTs. Treatment length ranged from 3 to 15 sessions. Attrition rates varied widely, with no clear indication across studies as to which was more tolerable. Two large sample studies (Nijdam et al., 2012; Power et al., 2002) reported dropout rates from the EMDR condition between 31% and 36%, and for the CBT condition between 29% and 46%.

Three studies found that EMDR and CBT treatments were equally as effective in reducing PTSD and depression symptoms (Ironson et al., 2002; Nijdam et al., 2012; Taylor et al., 2003).

Three studies indicated different patterns of results. Power et al. (2002) found that although the performance of both EMDR and CBT treatments was superior to a waiting list condition, EMDR produced a greater improvement in self-reported depression symptoms. Furthermore, Lee et al. (2002) stated that although both treatments were effective post-treatment, by follow-up EMDR was found to have superior outcomes to CBT for both PTSD and depression symptoms. Conversely, Devilly and Spence (1999) found their CBT-based intervention to be more effective than EMDR in reducing PTSD and depression symptoms. By three month follow-up, gains had been maintained but differences between the two treatments had become even more pronounced. Power et al. (2002) were the only authors to look at longer term outcomes and found that treatment gains were maintained at 15 month follow-up.

In terms of design, when rated against Downs and Black's (1998) checklist, study quality was variable (see Appendix B). None had made clear attempts to ensure their participants were representative of the population from which they were taken. Only two studies had completed power calculations, and several other studies had small sample sizes that may have led to a lack of sufficient power. All of the studies attempted to randomise participants to different treatment conditions but procedures for this were insufficiently stringent to be considered truly random. In three studies assessors were blinded to treatment condition. A methodological strength of two studies (Nijdam et al., 2012; Power et al., 2002) is that they used assessor-rated outcomes of depression symptoms, rather than relying only on self-report measures.

Summary of Studies Comparing Eye Movement Desensitisation and Reprocessing and Cognitive-Behavioural Therapy

The outcomes from studies comparing EMDR and CBT were mixed. Overall, they indicated that CBT and EMDR are fairly equivalent in their effectiveness in

reducing comorbid depression symptoms. Three studies found no significant differences in overall symptomatic improvement between the two treatments. Two studies found EMDR produced superior outcomes, with one study reporting CBT was superior and another study found that EMDR was superior only at follow-up. However, it is difficult to draw firm conclusions as several of these studies suffered from methodological limitations, including non-stringent randomisation procedures and small sample sizes in many cases.

Discussion

This review indicates that individual psychological treatments for PTSD are effective in reducing symptoms of comorbid depression, even where the treatment was trauma-focused and did not specifically target comorbid depression symptoms. Results also revealed that PTSD outcomes were still favourable, even where clients presented with comorbid depression symptoms.

Clinical Implications

CBT treatments had strong evidence to support their effectiveness in addressing comorbid depression symptoms. Studies also indicated that EMDR is an efficacious treatment in reducing comorbid symptoms of depression, with two studies noting significant symptomatic change after only a brief period of treatment (Hogberg et al., 2007; Marcus et al., 1997). Where information was available, both treatments appeared to produce lasting gains for PTSD and depression symptoms. This indicates that treatments for PTSD can still be effective even in the context of comorbid depression symptoms, and that comorbid depression symptoms can also improve even without any direct therapeutic focus.

Studies contrasting the two treatments did not clearly indicate a superior effect of one over the other. However, Nijdam et al. (2012) suggested that cognitive restructuring techniques prominent in many CBT interventions enhance treatment outcomes, and offer clients the opportunity to reflect on problematic feelings and beliefs that arise following a traumatic event. Thus, they recommended this technique be added to the clinical delivery of EMDR in order to produce optimal treatment outcomes. This may have additional benefits for clients with comorbid depression as it may offer an opportunity for therapists to identify and address any negative thoughts or beliefs that may prevent engagement with trauma-focused treatment.

A study by Sijbrandij et al. (2007) looked at the efficacy of brief CBT treatment for PTSD shortly after trauma exposure, compared to a waiting list group. Results indicated that group differences in improvements in PTSD and depression post-intervention were not maintained at four month follow-up due to natural remission in the control group's symptoms over the waiting period. Although there was some indication of enhanced treatment efficacy for those with comorbid depression, the authors do suggest that it is possible this might reflect the overlap between depression and severe PTSD symptoms in the acute post-trauma phase. This reinforces the NICE (2005) guidance for the implementation of PTSD treatments, which suggests "watchful waiting" in the initial period following exposure to a traumatic event, in order that any intervention offered be necessary and the effects of treatment beneficial and lasting, except where symptoms are very severe.

Methodological Limitations

There are several difficulties in drawing generalisable conclusions from the studies included in this review. Although some individual studies were methodologically rigorous, many suffered from design problems. Several studies used an uncontrolled

design, leaving open the possibility that other unmeasured variables may have influenced results. Some studies had fairly small samples, leading to a potential lack of statistical power. Further, many studies did not take clear steps to ensure their sample was representative of the wider population from which it was drawn, or that assessors were independent and masked to the treatment condition. Other problems largely related to poor reporting of study procedures (e.g. recruitment, follow-up and data analysis).

Comparing results across studies was also challenging due to the use of different symptomatic outcome measures, particularly for depression. Only four studies included a standardised assessor-rated scale post-treatment, but others relied on self-report measures, some of which have not been widely used or validated. However, many of these scales were based on the diagnostic criteria for depression, which does permit a degree of comparability.

Another major issue is that the umbrella term of CBT encompasses a variety of theoretical and therapeutic approaches (PE, tfCT and CPT), with different research teams and clinicians employing unique combinations of techniques in order to produce symptomatic change. Therapy sessions will inevitably vary across individual clients and therapists, but a lack of a consistent treatment protocol both across and within different approaches makes it difficult to identify the precise components of treatment that may be effective in reducing comorbid depression symptoms in a treatment where they are not the focus. Although EMDR treatments were somewhat more consistent in terms of protocol, these studies were also affected by problems of consistency in delivery in terms of length and frequency of the intervention.

Also problematic is the variable, and sometimes high, attrition rates across both types of treatment. A wide range of participants were treated in the reviewed studies, including some who had experienced multiple traumas (e.g. military personnel) and

there was no consistent pattern of dropout across studies. Furthermore, studies often did not explore whether comorbid depression symptoms might have affected engagement with and completion of treatment. Thus, it is somewhat difficult to conclude which treatments might be more tolerable and acceptable to clients.

Few studies attempted to ascertain whether depression preceded the onset of PTSD or specifically explored the effect of comorbid depression above and beyond monitoring the symptoms of it over the course of treatment. However, some studies indicated that the presence of depression pre-treatment (whether occurring pre- or post-trauma) did not affect PTSD post-treatment outcomes (e.g. Gillespie et al., 2002; Tarrier et al., 1999), but detailed information about the nature and impact of comorbid depression was lacking across the majority of studies. Furthermore, two studies also reported that control treatments also produced reductions in PTSD and depression symptoms, despite having no direct focus on the trauma memory (PCT, Suris et al., 2013; CPT-C, Resick et al., 2008). This may indicate that individuals with PTSD and comorbid depression can benefit from other treatments not currently recommended by NICE (NICE, 2005).

It is also important to note the aforementioned overlap in symptomatology between PTSD and depression (Sijbrandij et al., 2007), such as anhedonia and concentration problems. Very few of the studies comprehensively assessed comorbid depression at the start of treatment (e.g. using a diagnostic measure such as the Structured Clinical Interview for DSM-IV (SCID)) and even fewer studies ascertained whether diagnostic criteria were still met at the end of treatment, with the majority of studies relying on self-report data to monitor outcomes. This makes it difficult to determine whether participants were indeed experiencing depression as a distinct comorbid disorder, rather than reporting aspects of their PTSD symptoms on these self-report measures. However, some researchers have indicated that PTSD and

depression are differentially endorsed by clients and the high comorbidity is not simply a product of symptom overlap (Franklin & Zimmerman, 2001).

Research Implications

In light of the aforementioned limitations of the existing research, there are several potential avenues that future research could helpfully investigate. As it appears that individuals with PTSD and comorbid depression can benefit from EMDR, CBT and other treatments that are not trauma-focused, additional dismantling studies would be useful in order to address which components of these treatments are particularly efficacious for individuals with comorbid depression. Moreover, it might be important to establish whether clients with depression symptoms that pre-date their traumatic experiences respond differently to treatment than those who developed depression post-trauma.

Further, as it is possible that clients with comorbid depression might find it harder to engage with trauma treatment, some studies have suggested offering additional sessions with a specific focus on depression symptoms, where these prevented engagement with trauma work (e.g. Duffy et al., 2007). However, the effectiveness of this strategy has not been thoroughly assessed and thus empirical exploration of a more flexible approach to PTSD treatment may prove to be of use to clinicians treating clients with comorbid presentations. This might also help to explain the variable attrition rates for different treatments and might indicate whether certain treatments are favourable for particular groups of clients.

Above and beyond the general methodological considerations for conducting high-quality research, future studies should also aim to include a diagnostic assessment of depression at both the beginning and end of treatment, in order to determine and

differentiate the outcomes for depression as a distinct comorbid problem, following a PTSD-specific intervention.

Conclusions

CBT and EMDR treatments for PTSD are effective in reducing symptoms of comorbid depression, even where this has not been targeted specifically during therapy. Given the high prevalence of comorbid depression and PTSD in clinical populations, this is a promising result for clinicians treating clients in community settings with limited resources. However, further research is needed to explore the specific mechanisms of how different treatments produce improvements in depression symptoms and to determine whether PTSD treatments are also effective for depression symptoms that pre-date traumatic experiences. This will allow stronger recommendations to be made regarding the most effective way to approach PTSD treatment for clients with a comorbid presentation.

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Part 2: Empirical Paper

Early In-Session Predictors of Response to Trauma-Focused Cognitive Therapy

Abstract

Introduction: Trauma-focused cognitive therapy is an effective treatment for posttraumatic stress disorder but non-response rates can reach 50%. Client rumination, low therapist adherence to the treatment model and poor therapeutic alliance have all been suggested as predictors of poor treatment outcome. This study examined whether indicators of treatment response could be observed in early sessions. It was predicted that decreased client perseverative thinking, increased therapist adherence and stronger therapeutic alliance would be associated with improved treatment outcomes. Additional aims were to explore the role of client engagement with change and therapist response to perseverative thinking.

Method: Audio and video recordings of the first or second therapy session of 54 known treatment responders (29) and non-responders (25) were blindly coded for client perseverative thinking, therapist adherence and therapeutic alliance.

Results: To control for demographic differences between the responder and non-responder groups, ANCOVAs were conducted. These revealed that more perseverative thinking was observed for non-responders than responders to treatment. No group differences were found in regards to therapist adherence or therapeutic alliance. Exploratory analyses revealed that perseverative thinking across the whole sample was associated with fewer therapist attempts to address it in-session, reduced therapist adherence, poorer therapeutic alliance and less client engagement with change.

Conclusions: Client perseverative thinking observed in the first or second therapy session was predictive of non-response to trauma-focused cognitive therapy. Limitations of the current study and implications for clinical practice are discussed and recommendations for future research are made on the basis of these initial findings.

Introduction

Posttraumatic Stress Disorder (PTSD) is a common psychological response following a traumatic event and research indicates a lifetime prevalence rate of 7.8% (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995). It is characterised by symptoms of re-experiencing (flashbacks and nightmares), hyperarousal (exaggerated startle response) and avoidance of trauma-related stimuli or emotional numbing (American Psychiatric Association, 1994).

Trauma-focused cognitive behaviour therapy is a NICE recommended treatment for those presenting with PTSD symptoms that have persisted for at least one month (National Institute for Health and Care Excellence, 2005). However, treatment non-response rates can be as high as 50% (Bradley, Greene, Russ, Dutra & Westen, 2005; Schottenbauer, Glass, Arnkoff, Tendick & Gray, 2008). Thus, factors which might indicate non-response to treatment for PTSD are a critical topic for investigation. Research in this area has been limited but some studies have attempted to examine the client and therapist factors that might be predictive of poorer therapeutic response (Schottenbauer et al., 2008).

Client Factors Predicting Treatment Response

It has been argued that client factors are the biggest predictors of therapeutic response, with some studies suggesting they account for between 40% and 87% of the variance in treatment outcome (Bohart & Greaves Wade, 2013; Lambert, 1992; Wampold, 2010). Within PTSD, there has been some exploration of both demographic and therapy-related client factors that moderate response to treatment. Research on demographic variables indicates treatment non-response is associated with clients who are younger (Rizvi, Vogt & Resick, 2009), male (Tarrier, Sommerfield, Pilgrim &

Faragher, 2000), have never been married or lived with a partner and are unemployed or receiving disability living allowance (Ehlers et al., 2013). Comorbid diagnoses such as depression (Taylor et al., 2001) anxiety disorders (Tarrier et al., 2000) and personality disorders (Feeny, Zoellner & Foa, 2002) as well as the use of psychotropic medication and illegal substances (van Minnen, Arntz & Keijsers, 2002) have also been implicated in poor treatment response. Further to this, trauma characteristics such as the length of time since the trauma (Ehlers et al., 2013), whether the trauma involved a perpetrator (van Minnen et al., 2002), the presence of multiple traumas or childhood trauma (Hembree, Street, Riggs & Foa, 2004) and greater pain severity post-trauma (Taylor et al., 2001) have also been implicated as moderators of response to treatment. However, empirical investigation of the aforementioned factors has often produced contradictory results (Ehlers et al., 2013; Schottenbauer et al., 2008; van Minnen et al., 2002).

Rumination (i.e. recurrent and repetitive negative thinking about past experiences) has been established as a strong predictor of the development of chronic PTSD (Ehlers, Mayou & Bryant, 1998). It is also reported to be important in the maintenance of PTSD symptoms, specifically the presence of "why"/"what if" questions and unproductive thinking (Michael, Halligan, Clark & Ehlers, 2007). Rumination can maintain PTSD due to excessive preoccupation with negative feelings (such as guilt and anger) leading to a persistent state of emotional arousal (Ehring, Szeimies & Schaffrick, 2009; Moore, Zoellner & Mollenholt, 2008). Moreover, it may function as a means of avoiding engagement with emotions present during the trauma, such as fear (Echiverri, Jaeger, Chen, Moore & Zoellner, 2011), and thus prevent habituation during repeated exposure.

Echiverri and colleagues (2011) presented the case of a non-responder following prolonged exposure treatment for PTSD. They proposed that the client's in-

session rumination was a key barrier to improvement during therapy and blocked integration of corrective information into the trauma memory. However, this was based on a single case study and there remains a paucity of empirical research investigating the role of in-session rumination in therapy outcomes. The authors highlighted the need for further therapy process research, particularly that which compares treatment responders with non-responders.

As hypervigilance and a sense of current threat are key features of PTSD, it is unsurprising that worry (preoccupation with potential future threat) is also prevalent in this clinical population. Both rumination and worry are distinct from intrusive re-experiencing symptoms as they are longer in duration and involve evaluative, verbal thoughts rather than sensory responses and memories (Ehring, Frank & Ehlers, 2008). However, these two styles of thinking often overlap and co-occur (Fresco, Frankel, Mennin, Turk & Heimberg, 2002), and thus some authors have used the term "repetitive thought" in order to capture the process of perseverative thinking about the past or future (Segerstrom, Stanton, Alden & Shortridge, 2003; Watkins, 2008). Although most commonly associated with generalised anxiety disorder and depression, there is evidence that "repetitive thought" (or "perseverative thinking") is a transdiagnostic process also present in other disorders such as PTSD (Ehring & Watkins, 2008).

With regards to treatment outcomes, it has been suggested that the presence of rumination or worry may attenuate response by preventing the client from receiving a sufficient "dose" of therapy (Echiverri et al., 2011; Wells & Sembi, 2004). As the main focus of the present study was to explore in-session factors that might hinder therapy, for the purposes of this investigation rumination and worry were considered together as a "perseverative thinking style".

An additional factor that has been suggested to be relevant to treatment outcome is client engagement with the therapy process and motivation to change

(Orlinsky, Ronnestad & Willutzki, 2004). Michalak, Klappheck and Kosfelder (2004) found that client optimism and internal motivation for change was positively related to treatment outcome, although Garfield (1994) found no strong evidence to suggest such a relationship. Further, Beutler, Consoli and Lane (2005) note that clients presenting as higher in reactance, (i.e. increased resistance to follow directions from others), tend to have worse outcomes in more directive therapies such as cognitive behaviour therapy (CBT).

Therapy and Therapist Factors Predicting Treatment Response

There is a large body of literature relating to therapy and therapist effects on treatment outcome (Baldwin & Imel, 2013), but little research has focused on these factors in PTSD specifically.

A good therapeutic alliance has been demonstrated to be important to the outcomes of cognitive behavioural therapy (Hardy, Cahill & Barkham, 2007) and is proposed to be central to the effective treatment of PTSD (American Psychiatric Association, 2004). Klein et al. (2003) reported that early alliance was predictive of treatment outcome for clients with depression. Further, Keller, Zoellner and Feeny (2010) also reported that good therapeutic alliance in early treatment sessions was related to greater client adherence to treatment tasks and the likelihood that the client would complete treatment. Related to alliance, there is also evidence to suggest that good collaboration between the client and therapist (often seen as an essential component of cognitive behaviour therapy (CBT)) is associated with positive treatment outcomes (Orlinsky et al., 2004).

However, outcomes reported in the literature are mixed and the overall relationship between alliance and treatment outcome may only be small (Crits-Christoph, Connolly Gibbons & Mukherjee, 2013). Moreover, in a study of clients with

depression, DeRubeis and Feeley (1990) found that a strong therapeutic alliance in fact followed symptomatic change, rather than preceding it. Webb et al. (2011) also concluded that the "bond" component of the alliance might be dependent on prior symptomatic improvement, suggesting the relationship between alliance and treatment outcomes may not be unidirectional.

Greater therapist adherence to a treatment model has also been suggested to be related to treatment response. Feeley, DeRubeis and Gelfand (1999) suggest that greater therapist use of "concrete" cognitive therapy techniques (e.g. use of an agenda and homework tasks) early on in treatment leads to greater symptomatic improvements in depressed clients. However, findings are somewhat inconsistent. A meta-analysis of 36 studies of different treatment types by Webb, DeRubeis and Barber (2010) indicated no clear relationship between therapist adherence and client symptomatic improvement, with the authors suggesting this result might be due to heterogeneity in the outcomes of individual studies. Interestingly, Castonguay, Goldfried, Wiser, Raue and Hayes (1996) also reported that an increase in therapist adherence following an alliance rupture in fact led to poorer treatment outcomes in depression. Barber et al. (2006) propose that the relationship between adherence may not be linear, suggesting that both very low and very high therapist adherence lead to poor treatment outcomes.

Therapist competence has also been suggested as a potential predictor of therapeutic outcomes. Strunk, Brotman, DeRubeis and Hollon (2010) observed four early cognitive therapy sessions and found that greater therapist competence was related to improvements in assessor and self-reported depression symptoms at the end of treatment. However, this proposed relationship has also received mixed support (Webb, et al., 2010).

Previous Methodological Approaches

Although the aforementioned studies all offer promising suggestions for key predictors of treatment outcome, they have largely relied on standardised outcome measures or demographic variables in order to identify these. The aforementioned research indicates that treatment outcome can be influenced by a number of in-session variables (such as perseverative thinking, therapeutic alliance, therapist adherence), but the study of these factors through standardised measures may not capture the complexity of the interactions between the therapist and client during therapy sessions. Thus, it is reasonable to expect that systematic observation of therapy sessions might prove fruitful in establishing additional variables that predict treatment response. However, very few researchers have undertaken this type of study. Darcy et al., (2013) viewed videotapes of sessions over the course of family therapy for 21 adolescents with anorexia and rated in-session behaviours with a view to predicting early treatment response. Through this approach the authors were able to identify previously unreported variables that might play an important role in predicting treatment outcomes. To date no studies have attempted to use this type of approach for clients with PTSD.

Aims of Current Study

Due to the limited and inconsistent evidence regarding client and therapist factors associated with poor treatment outcomes in CBT for PTSD, there is a need for further research to examine indicators of non-response to treatment (Hembree, Marshall, Fitzgibbons & Foa, 2001). There is particular clinical relevance to ascertaining whether indicators of poor treatment response could be observable in early sessions, thus helping therapists to identify these indicators early in therapy and adjust treatment accordingly. As no studies have previously attempted to observe in-session factors in the context of predicting treatment response in PTSD, this study therefore examined

recordings of first and second therapy sessions of responders and non-responders to trauma-focused cognitive therapy, in order to identify client and therapist factors that might serve as early predictors of treatment outcome.

Following on from previous research, it was predicted that: i) a higher degree of client perseverative thinking (i.e. worry and/or rumination) would be observable within the first session for non-responders to treatment than responders; ii) increased therapist adherence to the treatment manual would be associated with improved treatment outcomes; and iii) stronger therapeutic alliance would be associated with positive treatment outcomes. Additional exploratory aims were to examine the therapist's response to client perseverative thinking and client engagement with change and solutions. Due to a lack of existing research no specific hypotheses were made, but it was expected that this might provide more information about the client and therapist behaviours which influence treatment outcomes.

Method

Participants

This study utilised recordings of therapy sessions from clients who met DSM-IV diagnostic criteria for PTSD and completed trauma-focused cognitive therapy at a specialist outpatient clinic based in South London between 2001 and 2013. The following inclusion criteria were used:

i) The client attended at least 5 sessions of therapy (i.e. was a treatment completer);

ii) The post-treatment change in PDS score (PTSD Diagnostic Scale; Foa Cashman, Jaycox & Perry, 1997) fell into one of the two treatment-response groups i.e. good responder (change of 67% or better) or a partial/non-responder (a change of 33%

or less; henceforth referred to as “non-responders”) to treatment (classification information is detailed below);

iii) To ensure therapist competence, sessions must have been conducted by a qualified therapist (not a trainee);

iv) The session must have been conducted without the aid of an interpreter.

All treatment completers for whom outcome data were available (413 clients) were screened against the inclusion criteria. It was then ascertained whether a working video or audio recording of the first or second session was available. Further to this, these sessions were checked to ensure they did not include any ‘reliving’ work, as this would restrict the opportunity to observe any pertinent client or therapist variables or interactions. As more working recordings were located for the responder than the non-responder group, tapes were selected at random to include similar numbers of participants in each group. Thus, a total of 54 clients were included in the study. Figure 1 shows a flowchart detailing the selection of participants.

In the sample as a whole, the mean age was 39.2 years (SD = 11.2) with 29 (46%) female participants. In terms of ethnicity, 32 participants (59%) were of white origin, 14 (26%) were of black ethnic origin and eight (15%) came from another ethnic group. Regarding marital status, 25 (46%) were married or cohabiting, 24 (44%) had never married and five (9%) were divorced, separated or widowed. As for educational background, 25 participants (46%) had left education after attaining GCSEs, eight (15%) after completing A-levels and 17 (32%) after university with four (7%) reporting they had not completed any school qualifications. In addition to their index trauma, 34 (63%) participants had experienced a past traumatic event, with the mean number of additional traumas being 2.61 (SD = 2.26). In terms of the type of presenting index trauma, 33 (61%) had experienced interpersonal violence, 16 (30%) had been involved

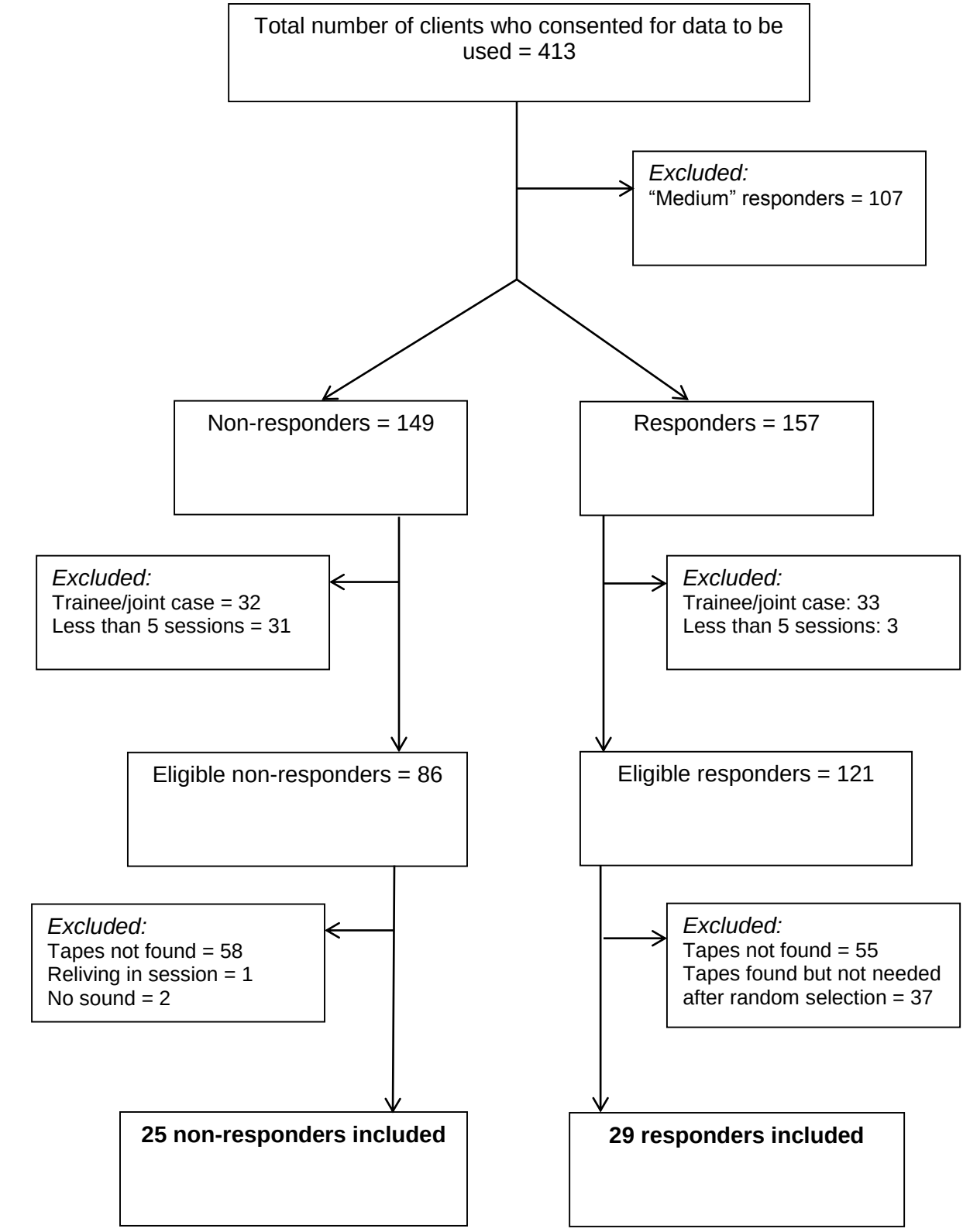

Figure 1: Inclusion and exclusion of participants

in an accident, two (4%) had witnessed harm to another person and three (6%) had experienced another type of traumatic event. The observed sessions lasted between 50 and 116 minutes (M = 81.13, SD = 16.63).

Ethical approval had been previously been sought and all participants had provided consent for their information and session recordings to be included in a wider research study (see Appendices C and D). See Table 1 in the results section for further information regarding the characteristics of the sample.

Treatment

The type of trauma-focused cognitive therapy used in this study is based on Ehlers and Clark's (2000) model of PTSD, and is subsequently referred to as CT-PTSD. The key aims of therapy are to: identify and address trauma-related negative appraisals; update trauma memories; discriminate triggers of intrusions; and change unhelpful cognitive and behavioural coping strategies that maintain a sense of current threat (see Ehlers, Clark, Hackmann, McManus & Fennell (2005) for details of treatment procedures). The initial treatment session is an opportunity for the client and therapist to identity problematic symptoms (with an emphasis on the normalisation of these) and to set goals. Importantly, the therapist will also introduce the cognitive model of PTSD (often using a metaphor to explain the nature of trauma memories and a thought suppression experiment to demonstrate the consequences of avoiding thinking about the memory), in order for clients to understand the rationale for subsequent activities of therapy (e.g. reliving and cognitive restructuring). An additional component of the first session is to start addressing the client's daily or social activities that may have become restricted since the traumatic event and to encourage re-engagement with these activities ("reclaiming your life" assignments).

Measures

A coding frame and manual were developed for the purposes of this study (the method of development is described in the procedure section below). The full coding frame and manual are presented in Appendices E and F. *Client perseverative thinking* was rated on a seven-point Likert scale, with 0 indicating perseverative thinking was always present during the session and 6 indicating perseverative thinking was not observed. *Therapist engagement with perseverative thinking* was scored on a seven-point Likert scale with 0 indicating that the therapist made no attempts to address it with the client or manage it in session and 6 indicating it was regularly and effectively addressed. *Client engagement with change and solutions* was also scored on a seven-point Likert scale, with 0 indicating the client was not at all engaged with discussions in this area, and 6 indicating they were always engaged. The *session content* item consisted of a list of all the topics expected to be covered in the first treatment session as directed by the treatment manual (e.g. introduction to structure of treatment and identification and normalisation of problematic symptoms). The number of items completed was summed and the percentage of the expected total calculated.

In addition the following standardised measures were used:

Posttraumatic Stress Diagnostic Scale (PDS; Foa et al., 1997). This scale asks clients to rate the frequency of DSM-IV specified PTSD symptoms (e.g. intrusive memories, nightmares and avoidance of reminders) from 0 (“never”) to 3 (“3-5 times a week/almost always”). Scores are totalled, with higher scores indicating greater PTSD severity. The PDS has been demonstrated to be reliable and valid (Foa et al., 1997) in measuring current PTSD symptoms.

Working Alliance Inventory-Observer Version-Short Form (WAI-O-S; Horvarth & Greenberg, 1986; Tracey & Kokotovic, 1989). This scale is a 12-item measure of the quality of therapeutic alliance, adapted to be rated from an observer perspective. It

covers three subscales: *Goal* (agreement about the goals of therapy; e.g. “the client and therapist are working on mutually agreed upon goals”), *Task* (agreement about therapeutic tasks; e.g. “there is an agreement about the usefulness of the current activity in therapy”) and *Bond* (the quality of the relationship between client and therapist; e.g. “there is a mutual liking between the client and therapist”). Each item is rated on a seven-point Likert scale with graded descriptors, following a format utilised by Berk, Safran, Muran and Eubanks-Carter (2010). There are two reverse scored items. Scores are totalled with higher scores indicating a greater observed alliance. Good reliability has been demonstrated for the WAI-O-S (r = 0.81; Gelfand & DeRubeis, undated, cited in Andrusyna, Tang, DeRubeis & Luborsky, 2001) and research demonstrates support for the validity of the Working Alliance Inventory (Horvarth, 1994).

CT-PTSD Checklist of Therapist Competence. This is an unpublished adaptation of the Cognitive Therapy Scale-Revised (CTSR; Blackburn, James, Milne & Reichelt, 2001) and was used to evaluate therapist adherence to the CT-PTSD treatment model. It has been used in previous trials (Ehlers et al., 2014) but reliability data has not been reported. However, Blackburn et al. (2001) have demonstrated good reliability and validity for the CTSR. Items pertaining to specific techniques utilised in trauma-focused treatment that are not included in the manual for the first session of treatment (e.g. reliving) were omitted.

Research Design

This study used a two group design, comparing responders with non-responders to treatment. Response to treatment was defined by a client’s score on the PDS pre- and post-treatment. Foa and Meadows (1997) determined a clinically significant response to treatment to be at least a 50% reduction in PDS score at the end of treatment. To ensure a clear differentiation between the two treatment response groups

in this study, the treatment responders group included clients who demonstrated at least a 66% reduction in PDS scores post-treatment. The non-responders group included clients whose PDS score post-treatment changed by less than 33% or whose symptoms became worse during treatment (i.e. an increase in PDS score at the end of treatment). Clients whose scores improved by 34% to 65% were not included in the study. However, it was necessary to consider the context of the percentage change in PDS score i.e. for those who did not did report very severe symptoms at the start of treatment. Where this was the case, participants were allocated to the responder group if their end of treatment score fell below the PDS diagnostic cut-off of 15 (Sheeran & Zimmerman, 2002). Due to the limited availability of session recordings, it was not possible to match clients across the two groups on demographic variables such as age, gender and the time elapsed since the trauma occurred.

Procedure

Phase One

The initial phase of the study involved the development of a coding frame to facilitate identification and measurement of relevant client and therapist variables. A literature review indicated that client perseverative thinking, therapist adherence and therapeutic alliance might be important areas to investigate. In line with the procedures used in similar studies (Darcy et al., 2013), this was followed by a discussion with three specialist therapists about their clinical experiences. Session recordings of known responders and non-responders to treatment from previous research trials (participant consent had previously been provided) were then watched. From this, suggestions of client engagement with change and therapist management of perseverative thinking were included. Decisions were then made about the type of rating scale to use and a Likert scale was chosen in order to be comparable with other rating scales used in the

study. Descriptors were developed for each level of the scale for each item. The coding frame was piloted using session recordings from previous trials and the manual and coding frame descriptors were adapted according to feedback from this process. Figure 2 shows a flowchart outlining the development of the coding frame.

Phase Two

Following the development, piloting and revision of the coding frame, session recordings from responders and non-responders were identified, viewed and rated. Therapist adherence to the treatment protocol was assessed using the CT-PTSD Checklist of Therapist Competence and therapeutic alliance was rated using the WAI-O-S. The rater was blind to the treatment outcome status of the client. Ethical approval had been previously been sought for a wider research project and consent had been provided by clients at the time of treatment for session recordings to be used for research purposes.

Inter-rater Reliability

An expert clinician independently rated nine (17%) of the session recordings so that inter-rater reliability could be completed. Intraclass correlations were conducted as suggested by Shrout and Fleiss (1979). Descriptions of acceptable levels of reliability were taken from Landis and Koch (1977). For the developed coding frame they revealed a very good agreement for the rating of client perseverative thinking (intraclass correlation of .87) and total of topics completed in session items (intraclass correlation of .90). Inter-rater reliability scores for client engagement with change were good (intraclass correlation of .79). For therapist response to perseverative thinking the inter-rater reliability ((intraclass correlation of .65) was below the recommended level for acceptability based on Nunnally's recommendation of a .7 threshold for exploratory

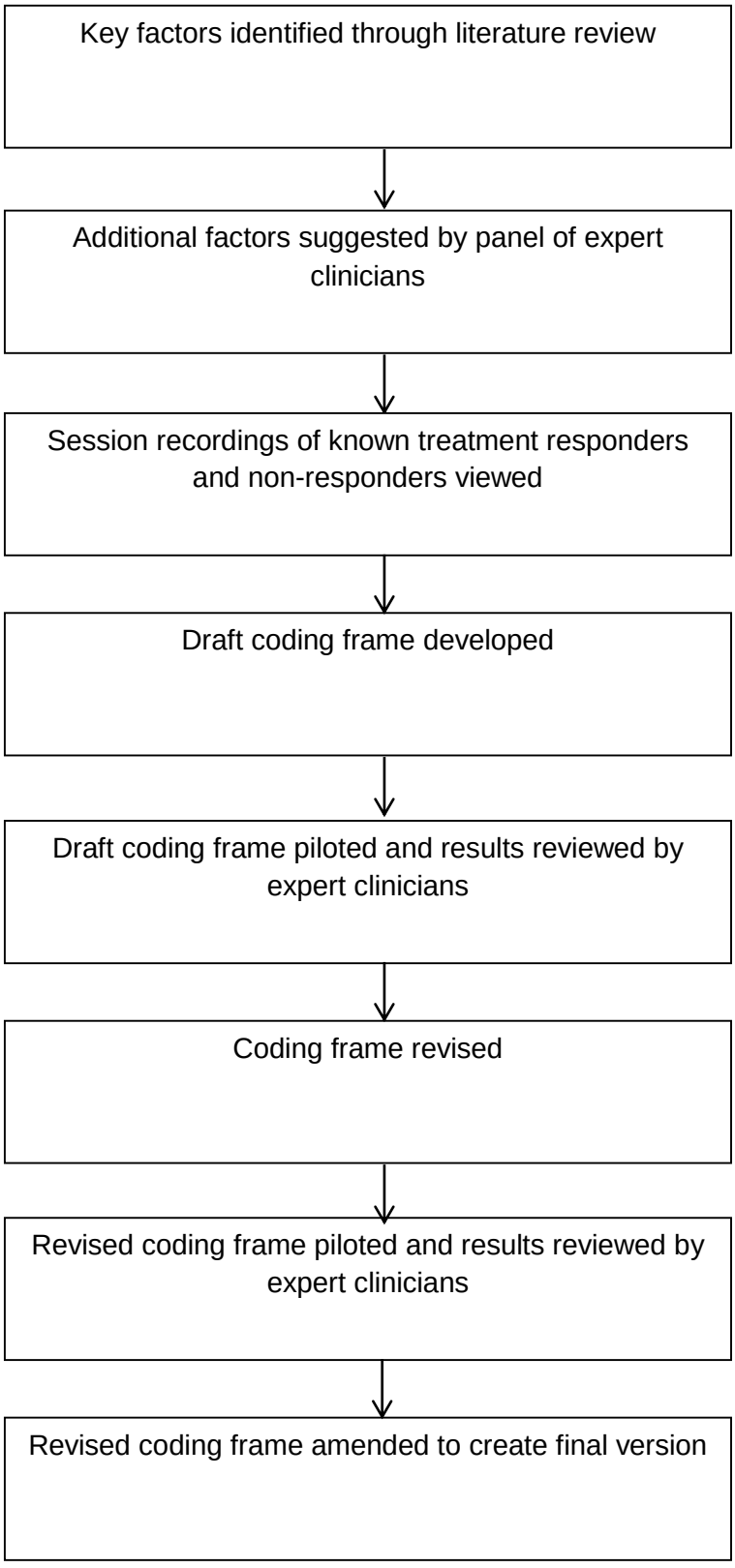

Figure 2: Development of the coding frame

research. This item was therefore removed and was not included in any further analyses. Of note is that in four cases, the change item could not be double rated due to lack of discussion of this topic in the session. There was also good agreement for the WAI-O-S total score rating (intraclass correlation of .71) and for the CT-PTSD Checklist of Therapist Competence total score rating (intraclass correlation of .80).

Power Analysis

Based on the recordings estimated to be available, a sample size of 30 for each group was anticipated. Using the G-Power program, and assuming $\alpha = .05$, it was expected this would result in 80% power to detect an effect size of $d = .74$. Due to practical difficulties in obtaining sufficient session recordings, the two groups consisted of 29 and 25 participants respectively. Post-hoc power analyses using G-Power (with $\alpha = .05$) indicated 82% power to detect a large effect size of $d = .8$.

Data Analysis

Data were analysed using SPSS statistical software, version 22. The groups were compared for systematic differences using independent t-tests and Chi-Square tests for categorical variables. Following the results of these, ANCOVAs were conducted to explore group differences whilst controlling for variables on which the groups systematically varied. Due to the exploratory nature of this research, additional correlational analyses were also conducted to offer tentative hypotheses about the relationships between particular variables.

Results

Recordings from 29 treatment responders and 25 treatment non-responders were viewed and rated for this study.

Data Preparation

There were no missing data. Where particular therapeutic tasks were appropriately not carried out in the session and therefore could not be rated, these were pro-rated when calculating the mean total score. Prior to analysis, the data were assessed to ensure parametric assumptions were met. Kolmogorv-Smirnov tests revealed that all but one dependent variable was normally distributed. The frequency histograms was inspected for this variables (percentage of topics covered in session in the responders group), which indicated that the data were not skewed or bimodal and only deviated slightly from normality. Thus, parametric tests were used to analyse the data.

Analyses of Group Demographic Differences

As it was not possible to match the two groups in advance, independent t-tests were conducted to compare the groups on several demographic variables to identify differences between them. Chi-Square tests were conducted for categorical variables. Table 1 details the sample characteristics and the results of these comparisons. As analyses revealed some differences between the groups, it was necessary to conduct ANCOVAs to test the experimental hypotheses in order to control for these. The following covariates were used: baseline PDS score; the presence of comorbid depression; the presence of a comorbid anxiety disorder; whether or not the client was

Table 1:
Sample Characteristics

Variable	*Responders (n = 29)* *M (SD) or N (%)*	*Non-Responders (n = 25)* *M (SD) or N (%)*	*t/χ^2 (df)*	*p*
Age (years)	38.72 (12.15)	39.69 (10.29)	-.32 (52)	.75
Gender				
No. of females	14 (48)	11 (44)	χ^2 = .10 (1)	.79
No. of males	15 (52)	14 (56)		
PDS pre-treatment	30.69 (7.91)	39.84 (8.18)	-4.17 (52)	<.001***[b]
PDS post-treatment	3.03 (2.28)	35.44 (9.40)	-16.82 (26)[a]	<.001***
Mean sessions	12.14 (3.46)	13.92 (3.55)	-1.87 (52)	.07
Length 1st/2nd session (mins)	85.28 (16.06)	76.32 (16.28)	2.03 (52)	.05**[b]
No. on medication	8 (28)	16 (64)	χ^2 = 7.21 (1)	.01*[b]
No. with comorbid anxiety	8 (28)	16 (64)	χ^2 = 7.21 (1)	.01*[b]
No. with comorbid depression	9 (31)	17 (68)	χ^2 = 7.35 (1)	.01*[b]
Months since trauma	21.95 (19.67)	60.92 (78.28)	-2.59 (52)	.01*[b]
No. previous traumas	2.45 (2.15)	2.80 (2.42)	-.57 (52)	.57
Type of trauma (No.)			χ^2 = 2.33 (3)	.51
Interpersonal violence	17 (58)	16 (64)		
Witnessed harm to others	2 (7)	0 (0)		
Accident	9 (31)	7 (28)		
Other	1 (3)	2 (8)		
Marital Status			χ^2 = 3.83 (2)	.15
Married	17 (59)	8 (32)		
Never married	10 (35)	14 (56)		
Previously married	2 (7)	3 (12)		
Ethnic Background			χ^2 = .33 (2)	.85
White	17 (59)	15(60)		
Black	7(24)	7(28)		
Other	5 (17)	3 (12)		

[a] Equal variances not assumed.
[b] Significant group differences controlled for in ANCOVA.
* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2:
Outcomes for Responders and Non-Responders

Mean Scores	*Responders (n = 29) M (SD)*	*Non-Responders (n = 25) M (SD)*	*Whole Sample (n = 54) M (SD)*	*ANCOVA F (df)*	*p*
Perseverative thinking [a]	2.69 (1.71)	1.88 (1.45)	2.31 (1.64)	5.60 (1, 46)	.02*
Client engagement with change [c]	3.72 (1.04)	3.88 (1.36)	3.79 (1.2)	.17 (1, 26)	.89
Therapist competence checklist (mean total)	4.17 (0.81)	3.94 (0.87)	4.06 (0.84)	.40 (1, 46)	.53
Therapist adherence (% content completed in session)	65.59 (14.63)	54.76 (19.97)	60.57 (17.98)	2.33 (1, 46)	.13
Therapeutic alliance (WAI-O-S total)	66.93 (9.89)	64.12 (10.95)	65.63 (10.39)	.52 (1, 46)	.47

[a] Lower scores indicate higher levels of perseverative thinking.
[b] Lower scores indicate fewer therapist attempts to address perseverative thinking.
[c] Lower scores indicate less engagement with change
* $p < .05$

on psychotropic medication; the number of months since the trauma; and the length of the treatment session.

Perseverative Thinking

Table 2 shows the scores observed for responders and non-responders for perseverative thinking, therapeutic alliance and therapist adherence.

An ANCOVA revealed a difference between the responders and non-responders in regards to perseverative thinking. This indicates that non-responders engaged in more in-session perseverative thinking (i.e. worry and/or rumination) than those who responded to treatment.

Engagement with Change and Solutions

In regards to client engagement with change and solutions, no group differences were found between responders and non-responders. However, of note is that this topic was not discussed in several sessions and therefore no rating of this area could be made for 20 participants.

Therapist Adherence and Competence

In regards to therapist competence, no differences were found between responders and non-responders. Furthermore, analyses revealed no differences between the two groups in terms of adherence, measured by the percentage of the expected content covered, as stipulated by the treatment manual.

Therapeutic Alliance

Analyses revealed no significant differences between responders and non-responders in terms of observer-rated therapeutic alliance. However mean scores were

relatively high for responders and non-responders, indicating that alliance was good across both groups.

Exploratory Analyses

As this study also had an exploratory focus, additional analyses were conducted. As perseverative thinking was prevalent for both responders and non-responders, correlations were conducted for this factor across the whole sample. Means and standard deviations can be found in Table 2.

A Pearson's correlation revealed that increased perseverative thinking was associated with a reduction in the percentage of expected content covered in the session (r = .52, p < .001). Further, therapist adherence to the treatment model was associated with less perseverative thinking in-session (r = .56, p < .001), as was stronger therapeutic alliance (r = .30, p = .03). In addition, the less perseverative thinking that was observed, the more the client was rated as being engaged with change and solutions during the session (r = .36, p = .04).

Discussion

The results of this study demonstrated that, as hypothesised, client perseverative thinking observed in the first or second therapy session was predictive of overall non-response to trauma-focused cognitive therapy, even when controlling for group differences in the presence of comorbid anxiety and depression. Hypotheses about group differences in the level of therapist adherence to the treatment manual or quality of therapeutic alliance were not supported. Further, no group differences were found in terms of client engagement with change and solutions in session.

Exploratory analyses indicated that increased perseverative thinking across both treatment response groups was associated with less content being covered in the session. This lends support to the hypothesis that perseverative thinking could be a predictive factor for treatment non-response by preventing clients from receiving sufficient exposure to treatment (Echiverri et al., 2011; Wells & Sembi, 2004). Further, across the sample as a whole, poorer alliance and therapist adherence were associated with an increase in perseverative thinking, which indicates that there is the potential for the therapeutic process to be negatively influenced by in-session behaviours. Increased perseverative thinking was also associated with less engagement with change and solutions during the session.

The lack of a relationship between alliance and treatment outcome is somewhat surprising given the existing literature (Baldwin and Imel, 2013). However, this relationship has been shown to vary across studies and may account for only 5% of the variance in overall treatment outcomes (Crits-Christoph et al., 2013). The lack of a relationship between therapist adherence and competence and treatment response falls in line with the findings of a meta-analysis by Webb et al. (2010). However, it is also possible that no group differences in alliance and adherence ratings between treatment groups were observed due to the inclusion of only experienced therapists in this study. As Baldwin and Imel (2013) note, therapists in a research setting are often highly trained to ensure minimal therapist differences and standardise treatment delivery. Further, Crits-Christoph et al. (2013) observed that alliance ratings from trials involving experienced therapists often vary very little as a result of their experience in engaging and working with a range of clients.

As exploratory analyses indicated that across both treatment response groups, perseverative thinking was associated with lower alliance ratings, it suggests that not addressing this issue has the potential to contribute to ruptures in the alliance due to

differences in client and therapist focus for the session and therapy as a whole. As it is possible that therapist strategies to address perseverative thinking may change in later therapy sessions, which may also have an impact on the client's engagement in this process, and that different types of strategies may prove more or less effective for certain clients, there is a need to further explore the role of the therapeutic relationship in the relationship between perseverative thinking and later treatment non-response.

As increased perseverative thinking was associated with less engagement with change and solutions, this might indicate that clients who ruminate or worry in-session may not present as ready to change their behaviour. However, the prospect of change and potential solutions (and barriers) to current difficulties were not discussed in over a third of sessions, despite being linked to several key topics in the treatment manual for the first session (i.e. goal setting, "reclaiming life" activities). It is possible that some therapists did not see the discussion of change as an important focus for the first session, instead concentrating their efforts on obtaining more information about the problematic symptoms in order to formulate a treatment plan. However, for some clients it is likely this topic was not covered due to session time being used to discuss other matters. This might relate to the aforementioned concerns about perseverative thinking influencing the way session time is used.

Limitations

One of the obstacles in examining in-session client and therapist factors was the lack of previous studies that had used a similar methodology, resulting in an absence of pre-existing measures to assist with operationalising observable client and therapist in-session behaviours. The coding frame used in this study was developed and piloted in collaboration with expert clinicians, but the inter-rater reliability statistics indicated some difficulty in applying this coding frame reliably.

It was necessary to remove the therapist response to perseverative thinking item from the analysis due to unreliability in rating of it across two observers. This might have been in part because the observer would have had to determine if the therapist's response was appropriate for the degree of perseverative thinking they were observing, and the coding frame was perhaps not explicit enough regarding what level of intervention was necessary for different 'levels' of perseverative thinking. Echiverri et al. (2011) has highlighted the difficulty therapists often face in discriminating ruminative processes from therapeutic engagement, which can be even more challenging from an independent observer perspective. This might be further complicated by the fact that therapists may actively choose not to address perseverative thinking in early sessions in order to engage clients and develop a good working relationship. In some situations the observer might have rated this response as appropriate, but in for other clients it might have been perceived as insufficient. Further, the difficulty of an observer identifying the in-session intentions of a therapist has been reported by Hurlburt, Garland, Nguyen and Brookman-Frazee (2010). They noted that observers identified fewer in-session goals and strategies than were self-rated by the therapists, and the concordance between the two ratings about the occurrence of particular goals was also low.

Unreliability in observer ratings is a common methodological problem across therapy process research (Elliot, 2010). In part, this may be due to the wide variation in client presentations and therapist styles, which may lead to ambiguity in rater interpretation. Placing a greater emphasis on rater training may go some way to resolving this issue. However, it has been well established that observer rating of therapist adherence and competence may vary over the course of therapy, and thus single session ratings can be unreliable (Webb et al., 2010).

Moreover, as this study was observational in nature, it did not allow for consideration of instances where therapists may make a conscious and reasonable decision to deviate from the treatment manual, such as where there are concerns about risk. This study also observed only first treatment sessions, meaning it could be hard to accurately evaluate the level of client engagement in a therapeutic task or goal, as the client often had little initial understanding of the treatment model. Thus it is possible that some clients may have acquiesced to the therapist's suggestions in early sessions, but ruptures in the alliance might have become apparent later in treatment.

This study was one of the first of its kind, and therefore offered a unique opportunity to explore important clinical issues that have remained relatively overlooked until this point (Hembree et al., 2001). However, as there was limited previous research to learn from, there were several methodological limitations that were difficult to foresee. As this was a retrospective study, there was no opportunity to recruit participants early on in treatment to facilitate matching of groups on key demographic variables known to influence treatment response (see Ehlers et al., 2013). Although several group differences were controlled for during analysis, it is possible that there may have been other important factors that varied across the groups that were not controlled for in this study. It is also possible that there were systematic differences between those who were amenable to sessions being recorded for research purposes, which might inadvertently have led to bias in the selection of participants for this study.

Clinical Implications

One of the major implications of this study is for the need for clinicians to identify perseverative thinking and to address these issues effectively with the client early on in treatment. This would ensure that time is used productively and that clients are effectively emotionally engaged, in order that processing of adaptive information into

the trauma memory might occur. Early identification of perseverative thinking might also anticipate and avoid any ruptures in the therapeutic alliance. Discussion of change and solutions to difficulties might provide an early opportunity to identify the areas in which perseverative thinking might be a barrier to therapeutic progress. Further, the use of rumination or worry outcome measures throughout treatment might draw attention to these processes and help the client and therapist to monitor difficulties and improvements over the course of therapy. However, as the measurement of perseverative thinking might differ across client self-report and the observations of therapists and independent raters, it may be important for the clinician to be flexible in their interpretation of any standardised measures of this phenomenon. Nevertheless, as this study indicates perseverative thinking might have implications for clients not receiving the full "dose" of treatment, improving both therapist and client awareness of perseverative thinking might encourage closer monitor of adherence to a session plan and the treatment manual, in order to ensure effective treatment delivery.

Implications for Future Research

The relationship between client and therapist in-session behaviours and treatment response is still somewhat unclear. Thus, future investigation of these variables in later therapy sessions, or across the course of therapy, may offer additional insight into their impact on overall treatment outcome. Further exploration might also help to determine why some clients respond well to treatment, even though they also engaged in perseverative thinking during early treatment sessions. To tackle the methodological issues described above, future research should attempt more detailed analysis of the existing observer-rated measures, with a view to improving their reliability in regards to specific in-session variables such as perseverative thinking. Studies which triangulate client, therapist and observer ratings of this phenomenon and

explore potential differences or discrepancies in the ratings could prove very useful for therapists attempting to measure and address perseverative thinking in clinical settings.

As it is likely that in-session factors such as alliance and therapist competence may vary during treatment and across patients, thus rating factors over multiple sessions would be of benefit. Crits-Christoph et al. (2013) recommend the use of a minimum rating of four treatment sessions per patient and multiple patients per therapist, in order to determine alliance ratings at an acceptable level and more accurately explain its relationship to treatment outcomes.

As this study found no group differences in some of the hypothesised variables that might mediate the relationship between perseverative thinking and treatment outcome, it is possible that other currently unknown variables might also be important in predicting response to therapy. Identification of these would further assist clinicians in their attempts to ensure optimal response to treatment for all clients.

It was decided to consider worry and rumination together as one “perseverative thinking” factor due to the evidence suggesting they represent similar underlying thinking styles (Fresco et al., 2002) that have the potential to ‘derail’ the course of therapy (Wells & Sembi, 2004). However, it is possible these processes might have somewhat different influences on therapeutic progress and thus, future research might benefit from operationalising these processes separately to establish any distinct influences on treatment outcome.

Conclusions

The results of this study demonstrated that client perseverative thinking observed in early therapy sessions was predictive of overall non-response to trauma-focused cognitive therapy. Predictions about group differences regarding therapist

adherence to the treatment manual or quality of therapeutic alliance were not confirmed. However, exploratory analyses indicated that perseverating thinking across both treatment groups was associated with less content being covered in the session and reduced therapist alliance, which may have implications for the progress of treatment. Thus, future research should attempt to monitor these factors over the course of therapy with a view to clarifying the relationship between early perseverative thinking and treatment non-response.

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Part 3: Critical Appraisal

Critical Appraisal

The factors influencing an individual's response to treatment remains a much debated and important clinical issue. Many studies have attempted to identify demographic factors that predict treatment outcomes but few have attempted to observe the therapeutic process itself for any indicators this might offer, and none have investigated these issues in clients with posttraumatic stress disorder (PTSD). This critical appraisal offers an opportunity to discuss some of the strengths and difficulties of this project, with a focus on the development and application of a coding frame, the practical and methodological challenges involved in undertaking this type of research, and elaboration on the clinical implications of main findings of the study.

Development of the Coding Frame

The first task in approaching this project was to determine which client and therapist factors might be important in predicting whether the client would eventually respond (or not) to trauma-focused cognitive therapy (as this study focused on a particular model of treatment based on Ehlers and Clark's (2000) model, it is referred to throughout as CT-PTSD). Reviews of the literature offered mostly demographic variables and pointed to few in-session predictors (particularly those specific to PTSD) due to the limited research that has been attempted using this type of methodological approach. As no studies using the same methodology were known of when this project commenced, we also decided to consult with expert therapists regarding any suggestions they could offer from their clinical experiences and then viewed sessions of known responders and non-responders together to gather additional ideas. Recently, a study was published by Darcy et al. (2013) looking at in-session behaviours in the context of family therapy for adolescents with an eating disorder. This study adopted a

similar strategy for the development of a novel coding frame. Despite this process generating many potentially useful avenues of investigation, at times it was difficult to operationalise these ideas in a way that they could be reliably identified and measured across different clients or therapists.

From watching session recordings, a common theme that became apparent was the presence of client rumination and/or worry. The team of researchers noted this often disrupted sessions or led to deviation from the planned agenda (as set out in the CT-PTSD manual, see Ehlers, Clark, Hackmann, McManus & Fennell, 2005). As a team, we discussed how best to operationalise these processes in order that they could be reliably coded. Initially we attempted to rate them separately and referred to pre-existing scales used for self-rated client rumination and worry (the Perseverative Thinking Questionnaire, Ehring et al., 2011; The Response Style Questionnaire, Nolen-Hoeksema & Morrow, 1991). However, it was difficult to convert many of these well-validated measures to an observer perspective as they largely related to internal thought processes. Thus, after creating two separate items we realised they were hard to differentiate and made a decision to collapse them and rename the item "perseverative thinking style". This decision was also influenced by the literature regarding the overlap between worry and rumination (Segerstrom, Stanton, Alden & Shortridge, 2003; Fresco, Frankel, Mennin, Turk & Heimberg, 2002; Watkins, 2008) and the expectation that worry and rumination would likely "derail" therapy in similar ways (reducing the number of in-session tasks that are completed and reducing emotional engagement with distressing material).

Although this decision was carefully thought about, measuring this concept so broadly might have reduced the opportunities to explore the impact of these processes in more detail. As perseverative thinking was observed across both treatment response groups, it is possible that finer distinctions in the way clients engage in these repetitive

thought processes might be important in determining later treatment outcome and thus should maybe be explored separately in any future investigations in this area.

Application of the Coding Frame

A major difficulty in completing the ratings for this study mirrored Echiverri, Jaeger, Chen, Moore and Zoellner's (2011) concerns regarding the challenges clinicians face in differentiating worry and rumination from pertinent beliefs and concerns during the course of therapy. At times it could be difficult to establish if the content of a client's conversation could be considered a perseverative "theme" or whether it was a unique and clinically important statement. It is likely that if sessions were to be rated at different time points in therapy, recurrent perseverative themes may be more easily identifiable for each client. The difficulty in using perseverative thinking as a predictor for treatment response based on the ratings of a single session highlights the need for additional research to consider these processes across multiple sessions, which might allow researchers to establish the extent to which this thinking style continues to impact on treatment sessions.

Another factor that was included in the coding frame was motivation to change. Amongst the panel of expert clinicians, there was an agreement that if this was absent, clients were unlikely to do well in trauma-focused therapy. However, this proved very hard to operationalise from an observer perspective and we decided to anchor this to engagement with suggested changes or solutions discussed in the session, for example, around "reclaiming life" activities. However, this item raised some difficulties. Firstly, the area of "change" was not always discussed in the session, which led to a significant amount of missing data. Secondly, the ratings were somewhat unreliable across raters, indicating there were inconsistencies in the way the coding frame had been applied.

The literature is still unclear about what good or poor motivation “looks like” in therapy. There is also a substantial overlap between “motivation” and the concept of “collaboration” (Bohart & Greaves Wade, 2013), which represents a more reciprocal process between the therapist and client, and is important within cognitive behavioural therapies (Dattilio & Hanna, 2012). Zuroff et al. (2007) reported that “autonomy motivation”, i.e. the extent to which the client believes their participation to be their own choice, was a better predictor of treatment outcome than therapeutic alliance. In addition, where therapists supported autonomous motivation, clients were more likely to score more highly on it, emphasising the dyadic nature of this process. It is possible that the present study instead captured more the collaboration element of therapy, rather than intrinsic client motivation or engagement with change.

This difficulty in creating a distinct and reliable “motivation to change” variable for research purposes has been echoed by Moorey (1996). It is possible that motivation to change is both multifaceted and difficult to identify as an observer. Until this matter is clarified, it is unlikely that reliable observation or coding of this concept will be possible. Thus, researchers might benefit from identifying clients who self-report as low or high in motivation, and gathering more information about any differences in the therapeutic process for these two groups.

A strength of the coding frame used in this study is that it attempted to identify separate client and therapist factors that might be important for treatment outcomes. However, an inherent difficultly in process research is the dyadic nature of therapeutic interactions, which makes disentangling the contribution of each party challenging. As suggested by Baldwin and Imel (2013), further research is currently needed to examine the role of both separate contributions and the therapist-client dyad in predicting treatment outcomes.

Practical Research Challenges

As this study represents one of the first of its kind, particularly within the area of PTSD, it offers a unique insight into the issues that clients and therapists face in engaging in psychological treatment for this problem, and the complexities in predicting in the early stages who will respond well at its conclusion. However, as there was a lack of previous research to draw on, there were several unforeseen methodological issues with the study.

In being in the fortunate position to draw on a large pool of treatment completers at a clinic where session recording is well established, it was anticipated that locating a sufficient number of recordings would not be too challenging. Instead, this proved to be a significant obstacle in the completion of this study as although we had a large initial data set of treatment completers, a substantial number had to be excluded according to our study criteria. It was then a difficult and time consuming process to locate the relevant anonymised tapes, check which were working with good quality audio and did not involve reliving in the session. A number of recordings of session one or two had not been made or stored after completion of the treatment. One might hypothesise about the various reasons why this might be the case. For example, it is possible that some clients might present in a particular way that a therapist may feel uncomfortable seeking their consent to record the first few sessions, until the therapeutic relationship has developed. Thus, this leaves open the possibility that the recordings we were able to locate for this project might be biased in some way, representing a particular group where either the therapist or client were more amenable to creating and preserving a recording of the session. One of the unanticipated outcomes of this project is an increased awareness and emphasis within the clinical team on the importance of therapists seeking consent to record from all clients from the first session onwards (within, of course, the usual boundaries of a client's right to refuse this without

consequence). This would ensure that any future research in this area would be less likely to suffer from some of the practical difficulties encountered in the course of this project.

The limited availability of session recordings for those meeting the inclusion criteria meant that the study might have been somewhat underpowered and that differences between the groups might therefore have gone undetected. Furthermore, it meant that matching of the two groups on demographic variables in advance was not possible. Unfortunately, this led to some systematic differences between the two groups, which necessitated analyses that controlled for these factors. However, this may not have fully compensated for these differences. Again this emphasises the importance of seeking consent for recording of sessions from all clients. It also highlights the extent of the advance planning required for a study such as this, in order to have enhanced control over extraneous variables that might influence the results.

When developing the coding frame, it had been anticipated that there would be the opportunity to triangulate these ratings with self-report data regarding rumination and therapeutic alliance that is routinely collected within the clinical setting. It was hoped this would facilitate greater understanding of any findings regarding these areas and offer additional indicators for clinicians to refer to in their clinical practice. Unfortunately, due to the restrictions imposed by the limited availability of session recordings, it was not possible to exclude clients who had missing self-report data. Thus, this represents a missed opportunity to analyse any similarities or inconsistencies that might exist between client, therapist and observer ratings of these factors. In addition, it is possible that the client engaged in perseverative thinking as an internal process during the session, but if this was not verbalised it would not have been rated in this study. If this is the case, it would still have implications for treatment outcomes, as the client may not be able to focus on the information given or effectively “process”

the trauma memory and associated emotions as hypothesised by Echiverri et al. (2011). Thus, future research should consider including a self-report measure for clients relating specifically to in-session perseverative thinking, which might help to capture more information about this process.

In the planning of this study, there was much consideration of alternative methodological strategies such as regression, in order to predict a variety of outcomes based on a number of different demographic and in-session variables. However, this approach was ultimately ruled out due in part due to the limited availability of session recordings, but also due to the exploratory nature of the study and the lack of knowledge about the nature of relationships between variables. Although attempts were made to maintain methodological rigour throughout, it was decided that some discussion of exploratory findings was important as this study provided an opportunity to identify potentially important factors that other research has not, perhaps due to the practical difficulties in embarking on such a project. The preliminary analyses of the impact of perseverative thinking on the therapeutic process could prove a useful starting position for other researchers hoping to investigate this in a more methodologically rigorous fashion.

Despite the difficulties involved in completing this study, it has also served to be an important clinical learning opportunity, allowing me to observe expert therapists and their different approaches to a standardised treatment protocol. This is a privilege that few trainees will have experienced and was of particular use to me as I was concurrently undertaking a specialist trauma placement. It has also helped me to reflect on my own experience of encountering difficulties in conducting therapy; examining the things that both the client and I might have done that may have led to less than optimal therapeutic outcomes, and the different ways I might manage these situations if I encounter them in my future clinical practice.

Clinical Implications of the Study Findings

The results of this study revealed that perseverative thinking was prevalent across both treatment groups, although significant differences existed between the responders and non-responders. This raises questions as to whether there is a "cut-off" where perseverative thinking becomes problematic (and how one might measure this), and which other factors might interact with and influence the role perseverative thinking plays in predicting treatment response, such as the therapist's response to this process in-session.

It was sometimes difficult to identify the therapist's rationale for not addressing worry and rumination processes when the client's preoccupations had consumed large periods of the available session time. Clinically, it is important to consider how therapists can quickly identify and helpfully address these processes when they occur during sessions, without negatively impacting the therapeutic relationship. The results of this study would suggest that the presence of perseverative thinking is an indicator of poor therapeutic alliance and less engagement with change and solutions. Therefore, rather than improving alliance and engagement, not addressing these matters early on might in fact lead to alliance ruptures and clients disengaging from treatment. Furthermore, it is likely that these processes are not stable over time, and that a number of other client and therapist variables are also important in mediating the relationship between these processes and treatment outcome. Again, this emphasises the role of further research exploring these processes across the course of therapy.

As treatment non-responder rates remain a concern, and with the ever-growing need to deliver treatments that are evidence-based and cost-effective, there exists a need for research to improve our understanding as to why some people do not respond to therapy. Rachman (1983) has differentiated between "technical" treatment failures, where clients do not respond due the treatment not being delivered in an optimal

fashion, and “serious” treatment failures, where clients who have received an optimal treatment still do not respond. A study by Stobie, Taylor, Quigley, Ewing and Salkovskis (2007) identified 84% of clients that had been labelled as treatment non-responders, had in fact been offered sub-optimal treatment and could be considered “technical failures” by Rachman’s (1983) definition. This highlights the importance of clinicians and services carefully monitoring treatment delivery to ensure clients are receiving optimal treatment. Greater investigation of the therapist and client factors that might “derail” the optimal delivery of therapy might also assist in differentiating ”technical” failures, from those clients who might instead require a different approach to treatment altogether.

During the rating of the sessions, as an uncontrolled investigation for my personal interest, I attempted to “guess” the treatment response group for the client I was watching. Instead of basing my decision on the information I had read in the literature in preparation for undertaking the project, I tried to go with my “gut instinct”. When the study was complete and the response groups revealed, I calculated that I was correct in 65% of the cases where I thought people would be responders and in 75% of the cases where I predicted they would be non-responders. Whilst these predictions were slightly above chance, it emphasised to me the difficulties we as clinicians face in considering the numerous factors that likely contribute to a person’s response to treatment, and I wondered how often therapist’s rely on their “gut instinct” and use this to guide their expectations and plans for a client’s course of therapy. If a therapist feels hopeless (or hopeful) about a client’s treatment response in the first session, this might have implications for how the client perceives and engages with therapy, even if these expectations are never explicitly discussed. Schulte and Eiffert (2002) suggest that if the therapist has a negative prognosis for treatment (often inaccurately) they more frequently change the treatment plan for the client over the course of therapy. This could be seen as an adaptive strategy as they learn more

information about the client, but results indicated it led to poorer outcomes. They argue that clients would do better if therapists adhered stringently to a treatment plan from the outset. Thus, the therapist decision making process over the course of therapy is another key factor that warrants further research in the search for predictors of treatment outcome.

Investigating this area further and offering clearer evidence regarding the obstacles to optimal treatment response might empower the therapist (and client) to attend closely and explicitly to their behaviour in sessions, with a view to adapting this where necessary. This would then also have implications for additional research regarding treatment delivery. Specifically, how can standardised treatments be effectively adapted to improve outcomes?

Summary

Despite the practical challenges involved in planning and conducting this type of study, it has offered a unique insight into the potential opportunities for researchers and clinicians to predict treatment response as early as the first therapy session. Whilst there are particular factors that might act as “warning signs”, this study highlights the complicated interplay of a wide variety of variables that might contribute to an individual responding poorly to an evidenced-based treatment. Although the results of this and other studies are still somewhat inconclusive as to the precise mechanisms that lead to response or non-response in treatment, it remains an important issue for all therapists to consider and address in their clinical work.

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Appendices

Appendix A: Index of Abbreviations

BEP	Brief eclectic psychotherapy
CBT	Cognitive behavioural therapy
CPT	Cognitive processing therapy
CPT-C	Cognitive processing therapy, cognitive component only (no written account)
CR	Cognitive restructuring
CT	Cognitive therapy
EMDR	Eye movement desensitisation and reprocessing therapy
MCPT	Modified cognitive processing therapy
NICE	National Institute for Health and Care Excellence
PCT	Present centred therapy
PE	Prolonged exposure
RA	Repeated assessment
SC	Supportive counselling
SH	Self-help
SIT	Stress inoculation training
STAIR	Skills training in affective and interpersonal regulation
TAU	Treatment as usual
TFCBT	Trauma-focused cognitive behavioural therapy
TfCT	Trauma-focused cognitive therapy
TTP	Trauma treatment protocol
WA	Written account (done in session)
WL	Waiting list

Appendix B: Downs and Black Study Quality Ratings

Study	1: Aims	2:Outcomes	3: Participant characteristics	4: Clear intervention	5: Confounders	6: Findings	7: Random variability	8: Adverse outcomes	9: Patients lost to FU	10: Actual p value	11: Representative sample	12: Representative participants	13: Facilities	14: Blind participants	15: Blind assessor	16: Data dredging	17: FU length	18: Statistics	19: Treatment compliance	20: Outcome measures	21:Comparable groups	22: Comparable time frame	23: Randomised	24: Concealed randomisation	25: Adjustment for confounders	26: Accounting for FU loss	27: Power	Total
Belleville et al. (2011)	1	1	1	1	2	1	1	1	1	1	0	0	1	0	0	0	1	1	1	1	1	0	0	0	0	1	0	18
Bryant et al. (2003)	1	1	1	1	2	1	1	1	1	0	1	0	1	0	1	0	1	1	1	1	1	0	1	0	1	1	0	21
Carlson et al. (1998)	1	1	1	1	2	1	1	1	0	0	1	1	0	0	0	1	1	1	1	1	0	0	1	0	0	0	0	17
Cloitre et al. (2002)	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	1	0	1	1	0	19
D'Ardenne et al. (2007)	1	1	0	1	0	1	1	1	0	1	1	1	1	0	0	1	0	1	0	1	1	1	0	0	0	0	0	15
Devilly & Spence (1999)	1	1	1	1	2	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	16
Duffy et al. (2007)	1	1	1	1	0	1	1	1	0	0	1	0	1	0	0	1	1	1	0	1	1	1	1	0	1	1	0	18
Ehlers et al. (2003)	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	23
Ehlers et al. (2005)	1	1	1	1	2	1	1	1	1	0	1	0	0	0	1	0	1	1	1	1	0	0	1	0	1	1	0	19
Ehlers et al. (2013)	1	1	1	1	2	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	0	1	1	0	23
Fecteau & Nicki (1999)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	0	0	0	0	14
Feske (2008)	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	0	1	0	0	1	0	0	1	0	16
Foa et al. (1999)	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	1	0	1	1	0	20
Foa et al. (2005)	1	1	1	1	2	1	1	1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	23
Forbes et al. (2012)	1	1	1	1	2	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	27
Galovski et al. (2012)	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	1	1	1	1	1	21
Gillespie et al. (2002)	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	1	0	1	0	1	1	0	0	0	0	0	0	14

Study	1: Aims	2:Outcomes	3: Participant characteristics	4: Clear intervention	5: Confounders	6: Findings	7: Random variability	8: Adverse outcomes	9: Patients lost to FU	10: Actual p value	11: Representative sample	12: Representative participants	13: Facilities	14: Blind participants	15: Blind assessor	16: Data dredging	17: FU length	18: Statistics	19: Treatment compliance	20: Outcome measures	21:Comparable groups	22: Comparable time frame	23: Randomised	24: Concealed randomisation	25: Adjustment for confounders	26: Accounting for FU loss	27: Power	Total
Hogberg et al. (2007)	1	1	1	1	2	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	0	20
Ironson et al. (2002)	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	1	1	1	1	1	0	0	0	1	0	0	16
Keane et al. (1989)	1	1	1	1	2	1	1	1	0	0	0	0	1	0	0	1	1	1	0	1	1	0	1	0	0	0	0	16
Lee et al (2002)	1	1	1	1	2	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	1	0	17
Marcus et al (1997)	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	13
Marks et al. (1998)	1	1	1	1	2	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	24
McDonagh et al. (2005)	1	1	1	1	2	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	1	1	0	18
Monson et al. (2006)	1	1	1	1	2	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	22
Nijdam et al. (2012)	1	1	1	1	2	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	23
Power et al. (2002)	1	1	1	1	2	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	1	21
Resick et al. (2002)	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0	1	0	1	1	0	18
Resick et al. (2008)	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	23
Sijbrandij et al. (2007)	1	1	1	1	2	1	1	1	1	1	0	0	1	0	0	1	1	1	1	1	1	1	0	0	1	1	1	22
Suris et al. (2013)	1	1	1	1	2	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	0	1	1	1	1	24
Tarrier et al. (1999)	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	1	1	0	1	1	21
Taylor et al. (2003)	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	0	1	1	1	0	0	0	1	1	0	17
Tuerk et al. (2011)	0	1	1	1	2	1	1	1	0	0	1	0	1	0	0	1	0	1	0	1	1	1	0	0	0	0	0	15
Van Minnen et al. (2002)	1	1	1	1	2	1	1	1	1	0	0	0	1	0	0	0	1	1	0	1	1	0	0	0	0	0	0	15

Appendix C: Consent Form (Clinical Data)

Mood Anxiety and Personality
Clinical Academic Group (CAG)

Directors: Professor D M Clark, Professor A Ehlers, Dr N Grey and Dr D Veale

CENTRE FOR ANXIETY DISORDERS AND TRAUMA
99 DENMARK HILL, LONDON SE5 8AZ
Direct Line: 020 322 82101 FAX: 020 322 85215
Email: anxietydisordersunit@slam.nhs.uk
Websites: www.national.slam.nhs.uk/cadat
http://psychology.iop.kcl.ac.uk/cadat

Clinical audit of treatment effectiveness

The Centre for Anxiety Disorders and Trauma is a research clinic. You will be receiving a psychological treatment that has been shown to be effective in previous research and the outcome of your treatment will be closely monitored with questionnaire and interview assessments. The questionnaires and interviews have two purposes.

First, they are important for your treatment as they will help your therapist in making sure that the treatment fits with your personal symptoms and needs. Filling in the questionnaires also helps with making best use of your time with the therapist.

Second, we would like to use the questionnaires and interviews for the clinical audit of our service. The Clinic seeks to continually improve our treatments. We need to find out how effective the treatment is for a wide range of people, which people respond very quickly and for what patients the treatment will need to be modified. We would therefore like to collect systematic data on how helpful the treatment is for all patients that are treated in the Clinic.

If you agree to participate, we would like to use your questionnaires and answers in the diagnostic interviews for this audit. The information you provide will be treated as strictly confidential. All materials will be given a unique code that will be used in all subsequent data analysis, and reports about the effectiveness of the treatment will be anonymous.

Treatment sessions in the Centre for Anxiety Disorders and Trauma are video and tape-recorded. Again, this has two purposes. First, you will be given the audiotape recording as we found that listening to the tape after therapy sessions speeds up recovery. The videotape helps your therapist plan future sessions, and helps checking that the treatment is delivered well.

Second, as with the questionnaires and interviews, we would like to use a few selected video- or audiotapes for looking at the question of which people respond to the treatment. This would involve comparing some treatment sessions of people who found the treatment helpful with some sessions of people who did not find the treatment helpful. The contents of the tapes will be confidential, and they will be kept securely. When the audit is over the tapes will be erased.

Participation in the audit is entirely voluntary, and you are at liberty to withdraw at any time, without giving a reason for doing so. Should you decide not to agree for your questionnaires, interviews or tapes to be used for this audit, this will not in any way affect your chances of receiving appropriate treatment within the hospital or any other aspect of the National Health Service. If you have questions about the audit, feel free to contact the Research Administrator of the Centre for Anxiety Disorders, Ms Aula Meki, at 020-3228-3291 - or the Research Director, Professor Anke Ehlers, at 020-7848-5032.

Principal Investigators:

Professor David M Clark, Tel. [redacted]
Professor Anke Ehlers, Tel.

Ethical Committee (Research) Reference: 296/01

Title of Project **Clinical audit of treatment effectiveness**

Names of Principal Investigators: Professors D M Clark, A. Ehlers and P.M. Salkovskis

Ethics Committee Application Number: 296/01

Have you read the Patient Information Sheet: Yes/No
(Please cross out as necessary)

Have you had an opportunity to ask questions and discuss this study? Yes/No

Have you received answers to your questions? Yes/No

Have you received information about the study? Yes/No

Who has explained the study to you:

Professor/Dr/Mr/Mrs/Ms .....

Do you understand that you are free to leave the study
$ **at any time**
$ **without having to give a reason for leaving**
$ **and without affecting your future medical care?** Yes/No

Do you agree to take part in this study? Yes/No

Signature .....

Date .....

(NAME IN BLOCK LETTERS) .....

Appendix D: Participant Consent Form (Session Recording)

Serial no. _____

Please copy this form and keep one copy with the audio/video tape and the other with Patient's case notes.

INSTITUTE OF PSYCHIATRY/BETHLEM ROYAL HOSPITAL AND MAUDSLEY HOSPITAL

Consent Form – Recorded Assessment and Treatment Sessions

I consent to the recording of an interview with me/my relative being made and kept on videotape/audiotape.

I understand that this recording may be used for purposes of assessment, clinical supervision or research. Strict confidentiality will always be observed, and it will be seen only within the Institute of Psychiatry and the Bethlem Royal and Maudsley Hospital by professional staff or their trainees.

I understand that I will be further consulted, and sign a separate form, before this recording is shown to a wider audience.

NAMES OF ALL THOSE APPEARING ON THE RECORDING	**AGE (If under 18)**	**SIGNATURES**
……	……..	……..
……	……	……..
……	……..	……..
……	……..	……..
……	……..	……..
……	……..	……..

NAME OF PARENT OR RELATIVE SIGNING ON BEHALF OF A CHILD OR PATIENT UNABLE TO GIVE CONSENT	**AGE**	**SIGNATURE**
……	……..	……

Name of Interviewer **Signature of Interviewer**

……... ……..…

Name of Consultant (Hospital patients only) **Date**

…… ……

Serial No. of tape ……..

This form must be signed at the conclusion of the recording by all those who appear on the recording. In the case of young children, the parent or guardian should sign, or in the case of patients unable to give consent, their nearest relative should sign on their behalf.

A copy of the completed form should be filed in the patient's notes and another copy kept with the video/audio tape.

PLEASE NOTE that it is still necessary to inform the interviewees during the first part of the recording that a recording is being made, and that their written permission for its preservation will be requested at the end

Appendix E: Coding Frame

In-Session Predictors of Treatment Response: Coding Booklet

Contents
1. Perseverative Thinking Style 1.1 Perseverative thinking observed in session 1.2 Perseverative themes 1.3 Therapist engagement with perseverative thinking
2. Goals 2.1 Client goals 2.2 Therapist response to matched goals 2.3 Therapist response to mismatched goals 2.4 Client readiness to engage with solutions
3. Session Content 3.1 Topics covered 3.2 Other topics discussed 3.3 Topic balance 3.4 Conversational balance 3.5 Client insight into internal experiences 3.6 Client engagement with formulation

Client ID:	
Session rated:	**First session / Second session**
Rater:	
Date:	

1. Perseverative Thinking Style

1.1 Perseverative thinking observed in session

0	**Always observed.** *Client is constantly excessively preoccupied with particular themes and returns to them frequently. The client may ask frequent "what if/why" questions. It is often hard for the therapist to move the client on to another topic. The client frequently provides excessive detail or multiple examples in response to the therapist's questions.*
1	**Almost always observed.** *Client is very preoccupied with particular themes and may ask "what if/why" questions or provide excessive detail in their responses. It may be hard for the therapist to move the client on to another topic.*
2	**Often observed**. *Client often returns to particular themes and/or asks "what if/why" questions. On occasion it is hard for the therapist to move the client on to a different topic. Client is likely to provide more detail than is required to answer the therapist's question, or give several examples to demonstrate the same point.*
3	**Sometimes observed.** *Client returns to particular themes and/or asks "what if/why" questions on a number of occasions and it may sometimes be difficult for the therapist to move the conversation on to a different topic. The client may provide more detail than required to answer the therapist's question.*
4	**Very occasionally observed.** *Client will occasionally return to a particular theme. There may be some "what if/why" questions but the client is easily moved on to another topic. Client may occasionally provide detail in excess of what is required by a question.*
5	**Rarely observed.** *Client does not appear preoccupied with a particular theme(s) but may raise one or two "what if/why" questions. Client provides only the level of detail required to answer a question.*
6	**Not observed.** *No repetitive preoccupation with a particular theme(s).*

1.2 Perseverative themes discussed during session

	Anger
	Guilt/responsibility ("I should have…I wish I hadn't…")
	Hopelessness of the situation ("there's no point doing anything")
	Impact of trauma (e.g. on relationships, work)
	Loss
	Permanent change (e.g. personality, appearance)
	Physical differences (e.g. disability, pain)
	Reasons for traumatic event occurring/what could have been different/decision making
	Rumination (i.e. "why do I spend all my time thinking about it?")
	Future danger
	Other, please state:

1.3 Therapist engagement with perseverative thinking

- **Only rate this item if client scored <6 on items 1.1. Tick this box if not applicable ☐ and proceed to item 2.1.**

0	**Never attempted.** *Therapist does not make any clear attempts to help client disengage from their perseverative thinking and may respond in a way that maintains these processes.*
1	**Rarely attempted.** *Therapist makes very few attempts to help client disengage from perseverative thinking processes and may respond in a way that maintains these processes***.**
2	**Very occasionally attempted.** *Therapist makes occasional attempts to help client to disengage from perseverative thinking processes but this is inconsistent and often ineffective.*
3	**Sometimes attempted.** *Therapist makes clear attempts to help client to disengage from perseverative thinking processes but this is inconsistent throughout the session.*
4	**Often attempted.** *Therapist often attempts to help client disengage from perseverative thinking processes, but may occasionally engage with it.*
5	**Almost always attempted.** *Therapist makes regular and effective attempts to help client disengage from perseverative thinking processes but may not attempt this every time this occurs.*
6	**Always attempted.** *Therapist consistently attempts to help client disengage from perseverative thinking processes throughout session.*

2. Goals

2.1 Client goals for therapy

- **If no goals are set in the session, please *tick here* ☐ and proceed to item 2.4.**

0	**Complete mismatch.** *The client's goals do not match at all with what cognitive therapy can offer or client is unable to provide any clear goals for treatment despite significant therapist prompting.*
1	**Rarely match.** *Despite therapist prompting to focus on appropriate goals, hardly any of the client's goals match what cognitive therapy can offer. A few may match but these are not a high priority for the client.*
2	**Very occasionally match.** *Less than half of the client's goals match with what cognitive therapy can offer and this process may require substantial therapist prompting or negotiation. The goals that match may not be of central importance to the client.*
3	**Sometimes match.** *Approximately half of the client's goals match with what cognitive therapy can offer. This may require significant therapist prompting. The goals that match are important to the client.*
4	**Often match.** *The majority of the client's goals match with what cognitive therapy can offer but some may not (may need prompting from therapist to focus on appropriate goals).*
5	**Almost always match.** *Almost all of the client's goals are a good match with what cognitive therapy can offer, but this may require some initial prompting from therapist to focus on appropriate goals.*
6	**Always match.** *All of the client's goals are a good match with what cognitive therapy can offer with very limited therapist prompting.*

2.2 Therapist response to matched client goals

- **If there are no well-matched goals, please *tick here* ☐ and progress to item 2.3.**

0	**Never addressed.** *Therapist does not make any attempt to attend to any matched goals.*
1	**Rarely addressed.** *Therapist makes very limited or ineffective attempts to address any matched goals.*
2	**Very occasionally addressed.** *Therapist may address some peripheral matched goals with the client but most remain unaddressed or ineffectively addressed.*
3	**Sometimes addressed.** *Approximately half the matched goals are addressed but most remain unaddressed or ineffectively addressed.*
4	**Often addressed.** *Therapist addresses the majority of matched goals with the client but a few goals of lesser importance may remain unaddressed.*
5	**Almost always addressed.** Almost all *matched goals are addressed with very few peripheral goals remaining unaddressed.*
6	**Always addressed.** *Therapist effectively attends to all matched goals with client.*

2.3 Therapist response to mismatched client goals

- **If there are no mismatched goals, please *tick here* ☐ and progress to item 2.4.**

0	**Never addressed.** *Therapist does not make any attempt to address any mismatched goals.*
1	**Rarely addressed.** *Therapist makes very limited or ineffective attempts to address any mismatched goals.*
2	**Very occasionally addressed.** *Therapist may address some peripheral mismatched goals with the client but most remain unaddressed or ineffectively addressed.*
3	**Sometimes addressed.** *Approximately half the mismatched goals are addressed but most remain unaddressed or ineffectively addressed.*
4	**Often addressed.** *Therapist addresses the majority of mismatched goals with the client but a few goals of lesser importance may remain unaddressed.*
5	**Almost always addressed.** Almost all *mismatched goals are addressed with very few peripheral goals remaining unaddressed.*
6	**Always addressed.** *Therapist effectively addresses all mismatched goals with client.*

2.4 Client readiness to engage with solutions and change

- **If there is no discussion of this area, please *tick here* ☐ and progress to section 3.**

0	**Not engaged.** *Client appears uninterested in discussing solutions to their difficulties or may appear very resistant to the idea of making any changes to their current situation.*
1	**Rarely engaged.** *The client indicates multiple barriers or problems when a solution is suggested by the therapist and does not raise any suggestions of their own. Any therapist attempts to problem-solve barriers that arise are unsuccessful.*
2	**Very occasionally engaged.** *Client expresses significant doubts/barriers in regards to the usefulness of a solution suggested by the therapist and does not attempt to suggest alternatives. However, the client may demonstrate some willingness to discuss or initiate changes.*
3	**Sometimes engaged.** *Client agrees to a solution suggested by the therapist and may express some thoughts about its usefulness. Client may make limited suggestions of their own and demonstrates an ability to form an action plan with support from the therapist.*
4	**Often engaged.** *Client is engaged with suggested solutions for the majority of the discussion with limited expression of doubts or barriers. They are likely to suggest some of their own ideas for solutions or areas of change, but may need some support in formulating an action plan.*
5	**Almost always engaged.** *Client engages with solutions suggested by therapist and may express thoughts about its usefulness or generate their own ideas. Client is able to formulate a plan for how solution can be applied.*
6	**Always engaged.** *Client offers their own ideas about solutions or changes and/or readily engages with suggestions by the therapist (e.g. may express thoughts about its usefulness). Client has a clear plan for how solution can be applied.*

3. Session Content

3.1 Topics covered in session

- **Please tick all topics that are covered in the session.**

	Introduction to structure of cognitive therapy		Discussion/formulation of safety behaviours
	Identifying main current problematic symptoms		Thought suppression experiment
	Normalising of PTSD symptoms		Information sheet given
	Goal setting		Reclaiming life addressed
	Memory model of PTSD symptoms (i.e. rationale for treatment; e.g. “messy cupboard” analogy)		Active homework set for week (e.g. reclaiming life, excluding reading of information sheet)
	Account of trauma (If already collected tick here ☐)		Tape of session given to client
	Discussion of negative appraisals/hotspots within trauma account		Routine measures reviewed

Proportion completed this session: _____ (/14 x 100) = _____**%**

3.2 Other topics discussed in session

- **Please tick other topics (not directly related to PTSD) discussed in the session.**

	Social issues e.g. housing, finances
	Interpersonal relationships
	Co-morbid disorder
	Discussion unrelated to current difficulties (e.g. general chat)
	Other, please state:

3.3 Topic balance of the session

- **Record your overall impression of the topic balance of the session.**

☐ Mostly focused on PTSD.
☐ Mostly focused on other issues.
☐ Roughly 50/50 for PTSD and other issues.

3.4 Conversational balance of session

- **Record your overall impression of the conversational balance of the session.**

☐ Mostly therapist talking.
☐ Mostly client talking.
☐ Roughly 50/50 for client and therapist talking.

3.5 Client insight into their internal experiences

0	**Not insightful.** *Client is unable to identify their thoughts, emotions or physical sensations despite substantial input from the therapist.*
1	**Rarely insightful.** *On infrequent occasions the client demonstrates limited insight into their internal experiences, but is likely to require substantial therapist input to achieve this.*
2	**Very occasionally insightful.** *The client demonstrates some insight into their internal experiences during the session, but is likely to require substantial therapist input to achieve this.*
3	**Sometimes insightful.** *The client demonstrates some insight into their internal experiences but tends to require some therapist support and this may be inconsistent throughout the session.*
4	**Often insightful.** *For the majority of the session, the client demonstrates good insight into their internal experiences but may require some therapist input to support this.*
5	**Almost always insightful.** *Throughout the session, the client frequently demonstrates good insight into their internal experiences with some (often minimal) therapist support.*
6	**Always insightful.** *Throughout the session, the client consistently demonstrates good insight into their internal experiences (i.e. they can clearly identify their thoughts, emotions or physical sensations and make links between them) with very minimal or no therapist support.*

3.6 Client engagement with formulation

- **If there is no attempt to formulate the client's difficulties, please *tick here* ☐.**

0	**Never engaged.** *Client demonstrates no or very limited understanding of the formulation and may indicate significant confusion despite therapist attempts to clarify. The client is likely to disagree about the relevance of the formulation to their current difficulties and may instead provide an alternative explanation. The therapist may appear to be attempting to persuade the client to accept the formulation.*
1	**Rarely engaged.** **The c***lient demonstrates a limited understanding of the formulation which may be accompanied by excessive clarifying discussions. The client is likely to express some concerns or disagreement regarding the relevance of the formulation to their current difficulties. The therapist may appear to be heavily negotiating in order for the client to accept the formulation.*
2	**Very occasionally engaged**. *The client seems to have some understanding the formulation but expresses significant doubts/barriers in regards to the usefulness or relevance of it. The client may appear to be more persuaded about its usefulness as the discussion progresses.*
3	**Sometimes engaged.** *Client demonstrates some understanding of the formulation presented by the therapist. However, they may appear or indicate they are confused about some areas, which are not easily clarified by the therapist, or they may not find the formulation directly relevant to their current difficulties.*
4	**Often engaged.** *Client demonstrates a sufficient understanding of the formulation and appears to find it relevant to their current difficulties. However, the client may not be actively involved in the construction of the formulation, instead primarily agreeing with suggestions made by the therapist.*
5	**Almost always engaged.** *Client demonstrates a sound understanding of the formulation and may express some thoughts about its usefulness or relevance. Client may show some inclination to develop the formulation further as it pertains to their own experiences.*
	Always engaged. *Client demonstrates a clear understanding of the formulation and finds it relevant to their current difficulties. Client is likely to be actively involved in the construction of the formulation e.g. makes explicit links between their thoughts and behaviours or offers relevant examples from their own experience.*

Appendix F: Coding Manual

In-Session Predictors of Treatment Response: Manual Booklet

Contents

1. Perseverative Thinking Style

A perseverative thinking style is characterised by repetitive and recurrent negative thinking about one or more themes and may be labelled as rumination or worry. These ideas may be past, present or future focused and relate to negative events, negative mood or hypothesised catastrophic situations. In PTSD, these processes can be identified as distinct from intrusive re-experiencing as they can last for a long time (minutes or hours rather than seconds) and involves evaluative, verbal thoughts rather than sensory responses and memories[1].

1.1 Perseverative thinking observed in session

This item scores perseverative thinking occurring within the therapy session and does not pertain to problems with this process outside the session that the client may discuss with the therapist.

To score highly on this item, the client would return frequently to the same topic. The client might not do this for the duration of the session. However you may instead observe frequent "what if/why" questions, in the absence of preoccupation with one particular theme.

You might observe:

- Client returning to a particular topic even when the conversation has moved on.
- Client may appear preoccupied with a topic, bringing it up repeatedly throughout session, or discuss concerns relating to a similar theme (e.g. worry 'chaining')
- Client may provide more detail than is required by the question asked, or may not answer the question at all, but appear stuck on a particular theme or topic.
- Client might repeatedly ask questions of themselves and/or the therapist around particular themes.
- Client may give multiple examples to explain the same point/relating to the same theme.
- Client might be unresponsive to therapist attempts to move them onto something else.

Examples:

- "What if I had/ If only I hadn't…."
- Did I do the right thing?"
- "If I can't drive again then I'll lose my job and I won't be able to pay my rent so I will have nowhere to live."
- "What if I get attacked again?""
- "Why did this happen to me?"
- "What if I can never go back to work?"
- "What if I never get better?"

1.2 Perseverative themes discussed during session

Keep a tally of the number of times different themes are raised by the client. This may guide completion of item 1.1.

[1] See Ehring, T., Frank, S., & Ehlers, A. (2008) The role of rumination and reduced concreteness in the maintenance of PTSD and depression following trauma. *Cognitive Therapy and Research, 32*, 488-506.

1.3 Therapist engagement with perseverative thinking

This item relates to the therapist's skills in noticing and responding to the client's perseverative thinking style in the session. **Only rate this item if client scored >0 on items 1.1.**

You might observe:

Therapist makes attempts to support client to disengage from perseverative thinking:

- Therapist attempts to move session away from perseverative themes.
- Therapist interrupts client when they engage in perseverative style in session.
- Therapist draws client's attention to their perseverative style.
- Therapist labels perseverative style as a problem (e.g. as rumination or worry).
- Therapist gives psychoeducation about perseverative thinking.
- Therapist uses a metaphor to explain perseverative thinking style (e.g. crowbar analogy).
- Therapist discusses ways to overcome perseverative thinking style.

Examples:

- "Let's move on now…"
- "I have noticed we have spent a lot of time talking about…."
- "That seems to be a topic of concern for you."
- "We seem to be getting a bit stuck, would it be ok for us to move on to something else?"
- "Other clients I have worked with sometimes tend to dwell on things, have you ever noticed that happening to you?"

Therapist makes limited attempts to support client disengagement from perseverative thinking:

- Therapist does not interrupt client when they engage with perseverative thinking in session or move them on to more relevant topics.
- Therapist does not label perseverative style as a problem or make helpful links to formulation.
- Client may raise a ruminative or worry topic (that may be unrelated to trauma-focused discussion) and therapist engages in discussion of this, rather than prioritising trauma/therapy/agenda-related topics.
- Therapist may request additional details that do not appear to be for the purposes of: therapeutic engagement; immediate enhancement formulation; or development of client/therapist understanding of PTSD symptoms (e.g. "How much training did your job require?"; "Are you planning to buy a house?").

2. Goals

2.1 Client goals for therapy

This item pertains to the goals that the client suggests they would like to address in therapy. If no goals are set in the session, please tick the box and proceed to item 2.4. N.B. The client's initial ideas for goals may not be symptom-related. However, if a client is able to generate, or responds well to suggestions of, symptom-related goals, they should score high on this item.

You might observe:

Goals that are well matched with cognitive therapy may be:

- Related to PTSD symptom reduction (i.e. re-experiencing, avoidance, hyper-arousal).
- "Reclaiming life" goals e.g. socialising, exercising, work.

Examples:

- "I want to stop the memory coming back to me all the time."
- "I'd like to be less upset by the memories."
- "I want to stop worrying that the same thing will happen again."
- "I want to get back to seeing my friends every week."
- "I want the nightmares to stop."
- "I want to stop feeling so down all the time."
- "I want to get back to work."
- "I want to be able to drive again."
- "I want to be less irritable with my children."

Goals that are not well matched with cognitive therapy may be:

- Unrelated to PTSD symptoms or reclaiming life activities.
- Unrealistic given the client's current physical health status (e.g. immediately returning a physically demanding job).
- Focused solely on issues secondary to PTSD symptoms (e.g. impact on relationships) without connection to how these relate to current symptoms.
- Focused on other social difficulties e.g. housing.
- Related solely to the reduction of symptoms of a different psychological difficulty (e.g. health anxiety, depression).

Examples:

- "I want the pain in my shoulder to go away."
- "I want to be more spontaneous in my life."
- "I want to resolve problems in my relationship" (existing pre-trauma, irrelevant to symptoms).
- "I want to move house".

2.2 Therapist response to matched client goals

This item explores how the therapist responds to therapeutic goals suggested by the client that are a good match with what cognitive therapy can offer. If there are no well-matched goals, please tick the box and progress to item 2.3.

You may observe:

- Therapist links goals to PTSD symptoms or formulation.
- Therapist links goals to what cognitive therapy can offer.

Examples:

- As you've been avoiding going out, you'd like to focus on how you can go back to doing the things you used to enjoy."
- "Treatment can help reduce the memories coming up so frequently."
- "If you've been avoiding it, it makes sense for us to work on getting you driving again."

2.3 Therapist response to mismatched client goals

This item explores how the therapist responds to therapeutic goals suggested by the client that are not readily addressed by cognitive therapy. If there are no mismatched goals, please tick the box and progress to item 2.4.

You may observe:

- Therapist may offer information about the remit of cognitive therapy.
- Therapist may suggest some possible goals.
- Therapist guides client to focus on goals which can be addressed in cognitive therapy.
- Therapist makes attempts to refine broad or vague goals (e.g. form SMART goals).
- Therapist supports client to develop realistic alternatives for goals that may not be achievable.

Examples:

- Although we can discuss ways to manage your pain, this isn't something that would be the main focus during therapy. Are there other day-to-day things that bother you?"
- "That is something you should discuss with your GP."
- "Given this information about what treatment involves, what do you think it could offer you?"
- "If you were happier, what would you be doing differently?"

Therapist does not address mismatched goals:

- Therapist does not attempt to change or refine mismatched goals.
- Therapist may not offer information about remit of cognitive therapy to help client make informed decision about goals.
- Therapist may not link goals to PTSD symptoms.

2.4 Client readiness to engage with solutions and change

This item explores the client's readiness to engage with potential solutions to their problems (offered by the client or therapist) and to utilise these. If there is no discussion of this area, please tick the box and progress to section 3.

You may observe:

Client engages with solution/change and may:

- Make suggestions about potential solutions.
- Come up with an active plan of what they will do.
- Ask clarifying questions about therapist's suggestions.
- Write suggestion down.
- Identify how they will overcome barriers to achieving solution.

Examples:

- "That's a really good idea."
- "I could try that out at the weekend."
- "How could I do that?"
- "What can we do in treatment to do that?"
- "I'm going to…"

Client is not engaged with solution/change and may:

- Be unable to think of any potential solutions.
- Suggest multiple barriers to the effectiveness of solutions despite problem solving attempts of therapist.
- Appear hopeless about possibility of change.

Examples:

- "I'm not sure I'd have time to do that this week."
- "I don't think that would work for my situation."
- "There's nothing I can do to improve the situation."
- "I can't see how that will help."

3. Session Content

3.1 Topics covered in session

The table summarises topics suggested by the manual for the first treatment session. Please tick all topics that are covered in the session. Please note that endorsement of the safety behaviours item must include some explicit formulation, labelling or linking to the client's current difficulties/symptoms, rather than just a general description or discussion of these.

Also calculate the proportion of suggested activities actually completed this session.

3.2 Other topics discussed in session

Please tick all other topics not directly related to PTSD that are discussed in the session. Please specify any topics not listed.

3.3 Topic balance of the session

Record your overall impression of the topic balance of the session.

3.4 Conversational balance of session

Record your overall impression of the conversational balance of the session.

3.5 Client insight into their internal experiences

This item examines the client's ability to identify their internal experiences i.e. they can clearly and consistently identify their thoughts, emotions or physical sensations and make links between thoughts, feelings and/or situations as pertains to the cognitive model of PTSD.

You might observe:

Client demonstrates insight into internal experiences:

- Client mentions thoughts, feelings, bodily sensations, behavioural responses and identify links between them.
- Client adopts a reflective position in regards to their internal experiences and expresses a desire to understand or explore them.
- Client may have some insight into unhelpful processes.

Examples:

- "I thought I was going to die and then I felt really frightened."
- "I thought that someone could attack me again and this made me feel…."
- "When I see something red it makes me think of blood…"
- "At first I was afraid then I got angry."
- "I dwell on it and it makes me feel really down."

Client finds it difficult to identify internal experiences or makes any links between them:

- Client may be unable to identify thoughts, feelings or bodily sensations and make links despite prompting from the therapist.
- Client may confuse thoughts/feelings even when given clarification of the difference by therapist.

Examples:

- "I don't know how I was feeling/what I was thinking about."
- "I didn't think/feel anything."
- "I felt that someone was following me."
- "I thought I was sad."
- "I feel pain in my body."

3.6 Client engagement with formulation

This item explores the client's response to the therapist's attempts to formulate the client's difficulties from a cognitive perspective. It examines the extent of the client's understanding of their difficulties and their satisfaction and engagement with the explanation offered by the therapist. If the therapist does not attempt to formulate the client's difficulties, please tick the box.

The therapist may formulate in the following ways:

- Introducing the memory model of PTSD.
- Utilising metaphors e.g. messy cupboard, conveyor belt, jigsaw puzzle.
- Maintenance cycle (e.g. for a specific situation: thoughts, feelings, physical sensations, behaviour).
- Identifying and discussing the role of safety behaviours.

You might observe:

Client is engaged with formulation and may:

- Demonstrate agreement or understanding with therapist's explanation (e.g. nodding, affirmative comments).
- Ask clarifying questions about the formulation of the therapist.
- Give examples of where they have noticed the formulation apply.

Examples:

- "That makes sense."
- "I do that at other times too."
- So the fact that I push the memory away makes it come back more."

Client is not engaged with formulation and may:

- Seem confused or does not appear to understand formulation.
- Not mention or be able to explain key parts of the formulation/discussion if asked to summarise their understanding.
- Be quiet or passive.
- Disagree with therapist's explanation.
- Offer an alternative explanation for their difficulties.

Examples:

- "I don't think that applies to my situation."
- "I don't really get it."
- "That doesn't make sense to me."